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REPORT

TO THE

LOUISIANA STATE MEDICAL SOCIETY,

ON THE

METEOROLOGY,

VITAL STATISTICS AND HYGIENE

OF THE

STATE OF LOUISIANA.

BY S. H. GAYTON, A. M., M. D.,

WITH AN

APPENDIX,

CONTAINING [illegible]

AND [illegible]

BY D. B. MEANY.

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REPORT

TO THE

LOUISIANA STATE MEDICAL SOCIETY,

ON THE

METEOROLOGY,
VITAL STATISTICS AND HYGIENE

OF THE

State of Louisiana.

BY E. H. BARTON, A.M., M.D.,

President of the Medical Society of the State of Louisiana; Permanent Member of the National Medical Association of the United States. Former Professor of the Theory and Practice of Medicine and Clinical Practice in the Medical College of the University of Louisiana; Doctor of Medicine and Surgery of the Royal University of Havana, etc. etc. etc.

TO WHICH IS ADDED

AN APPENDIX,

Showing the Experience of Life Insurance Companies in Louisiana,
With Tables of Mortality for the use of such Companies.

And the Laws of Probability of Life (English Calculation);

ALSO, THE EXPERIENCE OF THE LONDON LIFE INSURANCE OFFICES, ETC.

BY H. G. HEARTT,

Actuary of the Mutual Benefit Life and Fire Insurance Company of Louisiana, [illegible]
Actuary of the British Commercial Life Insurance Company, of Lo[illegible]

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NEW ORLEANS, *March 27th*, 1851.

E. H. BARTON, A. M., M. D.:

Dear Sir:—The immense importance of correct Statistics of the Mortality of the City of New Orleans and the State of Louisiana, that comparison may be made with that of other Cities and States, in order to remove the unfavorable impression existing in regard to the health of this section of the Union, has induced us to request a publication of your very able and elaborate lecture on that subject, delivered before the Medical Society of the State of Louisiana, and upon the data of which you have bestowed so many years of observation and labor, making it an important and invaluable work of reference. Had more attention and publicity been given heretofore to Statistics, the growth of our City and State would have been more rapid, its population larger, and the sense of security of health would have caused also the retention of capital within its borders.

The want of correct statistics of mortality has been severely felt both here and in Europe, and its importance is further manifest, as it is only from such information that those institutions, created to alleviate the wants of families deprived of their natural supporters—Life Insurance Companies—can make the requisite mathematical calculations whereby the just rates of premium of life insurance and annuities can be established with reference to the Southern States; and in order that facilities may be given for the furtherance of this object, we renew our hope that you will favor us with a copy of your Report for publication, and remain, with high respect,

A. D. CROSSMAN,	S. J. PETERS,	ISAAC T. PRESTON,
J. H. CALDWELL,	JAMES ROBB,	ISAAC JOHNSON,
J. BALDWIN,	PETER CONREY, JR.	WM. FRERET,
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C. C. SNETHEN,	JOHN A. DOUGHERTY,	ALFRED HENNEN,
H. G. HEARTT,	H. C. CAMMACK,	THEODORE CLAPP,
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THOS. SLOO,	R. M. DAVIS,	E. H. CARMICHAEL, M.D.
E. L. GOOLD,	B. STILLE, JR.	HOWARD SMITH, M.D.,
T. B. THORPE,	SAMUEL WOLFF,	R. BEIN, M.D.,
R. F. CANFIELD,	J. THAYER,	G. W. SMITH,
BENJAMIN FLORANCE,	JOHN CLAIBORNE,	EDW. W. SEWELL.

NEW ORLEANS, *April*, 1851.

GENTLEMEN:

I have been honored with your note, requesting a copy of the report I made to the Louisiana State Medical Society, on the subjects of the Meteorology, Vital Statistics and Hygiène of the State, for publication. Though by no means insensible to its many imperfections, yet I must hope it will not wholly fail of service in the cause of life and health, since it has met the approval of persons of your position and intelligence; and with your leave, therefore, I WILL DEDICATE IT TO THE MUNICIPAL AUTHORITIES OF THE CITIES OF NEW ORLEANS AND LAFAYETTE, for whose enlightened consideration and judgment, its facts, principles and suggestions, were mainly designed.

Grateful for your approbation, and very obliging expressions,

I remain, gentlemen,

Most respectfully,

Your obedient servant and fellow citizen,

E. H. BARTON.

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ERRATA.

Page 7—Last line but one, for 'and' read *as.*

" 9—For 'and,' first word on the page, read *we shall.*

" 54—In fifth line from top, for 'fiscal' read *final.*

" 56—Second line from top, for 'Mutual Benefit Insurance Company,' read *Mutual Benefit Life and Fire Insurance Company.*

" 56—Seventeenth line from top, after 'and,' add *I.*

REPORT

ON THE

METEOROLOGY, VITAL STATISTICS AND HYGIÈNE

OF THE

STATE OF LOUISIANA.

Read before the Medical Society of the State of Louisiana, 7th March, 1851.

GENTLEMEN:

On our first organization, I had the honor to be appointed chairman of the Committee to report on the important subjects of the Meteorology, Vital Statistics and Hygiène of this State. On accepting that conspicuous post, I was not unaware of the sterileness of the field I had to work in — of the vast amount of toil to be bestowed to garner up fruits worthy of the Society, such as would fulfil the expectations, nay the *requirements* of science at this enlightened period of the world. I knew from many years' experience, that neither meteorology nor vital statistics were sufficiently prized by most of our cotemporaries here; that, consequently, but few records were kept of them. I shall now lay before you the result of my labors, imperfect though they be, and as our predecessors have signally failed in the performance of their duty — the scantiness of the materials left behind them must disarm criticism I should think, and leave me fair claims to your indulgence.

I. I commence the report at the fountain head — Meteorology; for these two subjects of Vital Statistics and the condition of the atmosphere have the direct influence of cause and effect impressed upon them. I wish to call your attention primarily to this connection, and we shall be the better enabled then to understand the nature of each, and appreciate our true position. In

the great range of secondary causes, through which the influence of Deity is felt, meteorology is doubtless one of the mighty agents by means of which it is experienced. The subject is *attractive*, as its investigation unfolds the great laws of our Creator; it is *important*, for we cannot understand the great principles of climate and of health while ignorant of it; and it is *interesting* to us, for not a tree unfolds its leaves, nor a blossom expands its petals, nor the great science of agriculture, upon which we depend for our daily sustenance, is cultivated, without unfolding the truths and the science of meteorology. Whether, then, we are freezing under polar snows — scorching under tropical heats, or fanned by the zephyrs of milder regions, it so directly influences all, as to establish the popular belief (in which every man of science concurs), that it has a large share in most of our enjoyments, and materially influences nearly all our ailments. In a southern country, then, where a high range of temperature imparts to man an exalted sensibility, I may be pardoned for inviting your special attention to it.

The application of meteorological science — to the explanation of its influence on the vegetable and animal creation, and on man himself — the different races of man, — on the healthy and diseased condition, — is too extensive to be entered upon on the present occasion, or, indeed, upon any occasion within the proper compass of a single lecture. I can give but a very meagre sketch of the vast subject allotted to me. Vegetable and animal geography is one of the most captivating studies of the vast field of animated nature; but how much more important is that of man — influenced as he is in every latitude by these conditions; but to our profession belongs the speciality of its influence on his health — or *medical geography*. The why and wherefore that plague should exist in one country and yellow fever in another; — that Goitre should exist in Alpine regions, and Plica in Poland; — that Barbadoes leg should prevail in the Antilles and Beriberi in Ceylon; — that Matlazahuatl in Mexico and leprosy in Cuba, and that cholera should not pass the Equator, nor the yellow fever until last year, etc., etc., are as curious as they are well-established facts, showing the different influences of climate upon man. In the more highly advanced condition of this interesting science,

and probably be enabled to explain the *modus operandi* of this influence, and thus be empowered to turn such knowledge to our benefit. Is not every thing to be expected from its progress, when we state to you that a French mathematician has demonstrated that a flower will bloom when the sum of the squares of the daily mean of temperatures reaches a certain point from the last freeze of winter! and that it has been ascertained that the common lilac blooms when this sum reaches 7607° of Fahrenheit's thermometer, and it has been already proved in relation to the recurrence of yellow fever of Philadelphia, in a series of years from 1793 to 1817, embracing many epidemics, that it occurred in no year when the average thermometer at 3 o'clock was under 79° during the summer, and that the extent and malignancy of the disease was proportioned to the extent in which it exceeded that height;—and that the average temperatures of June and July at that period governs the season in relation to health, insomuch that if, by the 1st of August in any year, the average shall be below that degree, we should feel full confidence that during that season yellow fever will not occur! In relation to this country, although this precise degree does not apply, (in an examination I have made of some nineteen years), yet the principle that the salubrity of the city greatly depends upon the elevation of temperature is fully borne out; and this does not at all detract from the value of the experience derived from what occurred at Philadelphia, for during the period under notice there was a more or less stationary and fixed condition of things in Philadelphia, while here almost everything has been in the transition state, and that though it is one of the most important agents influencing our sanitary condition, it is not the only one. These important statements evince the interest and value to be attached to the study of this department of science, and that it is a duty we owe to society, to the profession, and to our wants and enjoyments, to cultivate it.

I now present to the Society digested records of asmospherical conditions in this State for the last 30 years, made by myself, viz., of 12 years in West Feliciana; of 18 years in this city; of the journal kept by the scientific Lafon, for 1807, 1808 and '10 and 1819, here—of the parish of Rapides for the last 20 years,

kept by a most worthy gentleman, Major P. G. Voorhies; and also the quantity of rain that has fallen during the last five years in the parish of Plaquemine, by Thomas Morgan, Esq. All these records have been carefully digested, out of which I have constructed Chart No. 1, illustrative, by comparison, of the climate of Louisiana in its different sections.

There are causes influencing our meteorological condition, which, in a proper estimate of our climate, we cannot overlook. I allude to the great modifying power of *large inland bodies of water* upon it. I am indebted to my friend, Professor Forshey, for the interesting computation. The whole area of the State of Louisiana is . . . . . 48.972 square miles:

Of this—

Marsh alluvion, west of delta (or Vermillion river)	2.880	"
Mississippi delta, south of Red river (Lyell's limit of delta) . . .	12.514	"
Mississippi delta, north of Red river (within Forshey's delta) . . .	3.420	"
Red river alluvion above Avoyelles,	1.656	"
Ouachita do. above Bœuf river,	.900	"
Making an aggregate, including flat lakes, of	21.370	"

All this is not constantly under water—but it is so more or less, and *constantly* subject to it. This does not include the alluvions of the smaller streams, and some, he admits, may have been reclaimed by levees. He farther states, that of the whole alluvion, there is uncultivable more than half, say 12,000 square miles, including shallow lakes.

You see, then, that about *one-eighth* of the State is constantly under water, and that more than *two-fifths* of it are subject to inundation. That this vastly influences its *thermal* as well as its *hygrometrical* condition in an annual average temperature of between 60° and 70°, and latitude between 29° and 33°, is too palpable to dwell upon,—indeed we know that it is so, and that if the hygrometrical is enhanced by it, its thermometrical is much lowered. Such I believe to be the fact in relation to contiguous

territory, and that the climate of Louisiana is much milder and more equable from these causes, than large portions of Texas that are much to the south of us.

With these preliminary data, I propose now to enter upon a somewhat discursive examination of some of the most interesting arcana of nature unfolded by this beautiful science. Not only man, but all animal and vegetable creation is controlled by it. But little examination and reflection will be needed to convince us that it is through the laws of meteorology that the Deity acts (by secondary causes) in controling the actions and destiny of all animated nature.

That the qualities of the medium in which we live should produce disease, when there are great vicissitudes, when we are subjected to them under conditions we are not accustomed to, or when the system shall have acquired increased susceptibilities from other influences, is not at all extraordinary. In fact, it seems to be in precise accordance with the common sentiments of mankind. Medical men, (before the laws of meteorology were understood,) refining upon this universal assent, deeming it too vulgar, or not sufficiently recondite for the mysteries of scientific faith, thought proper to ascribe to another agency the production of the great mass of human maladies. Of the many wonderful powers of this supposititious agent, (miasm,) with attributes certainly incompatible with any known agent, I have nothing to do now; I only call your attention to some of the *sensible properties* of the atmosphere — to show that these qualities, so common as to be passed by almost unnoticed, are of the greatest importance in the preservation of our health, and that, together with personal indulgences and some hygiênic conditions, to be hereafter adverted to, most of the conditions productive of a pathological state are fulfilled. Confining ourselves, then, to the tolerably well demonstrated certainties of science, the cultivation of the profession and the advancement of our art, will be cotemporaneous with the alleviation of human suffering, and we shall be rewarded at each forward step in our career by witnessing the gratifying progress we have made.

Upon inferior animals which have not been endowed with this intelligence, or capacity, there has been vouchsafed a power that

is an ample substitute for it, in those unerring instincts that urge them to provide for ordinary, as well as extraordinary, seasons—that teaches the beaver to prepare, by an additional story to his retreat, *months beforehand*, for a great overflow,—and the bee to lay up in *the autumn* for a *lengthened winter*. Surely this must be by and through some meteorological condition made known to them through their senses—as yet, so far beyond the reach of scientific certainty;—nay, man borrows information from the birds of the air and beasts of the field, foretelling approaching changes in the atmosphere, and his boasted science is nothing in these respects when compared with the power possessed by the inferior animals to guard their lives from danger. Without this conservative power, probably no race of animals could survive a single generation;—one would die of excessive heat, for which they were not duly prepared; another, from undue exposure to excessive cold; one by the hurricane they now scent at a distance; another prepares for the flood, that otherwise would destroy all exposed to it, and early providence prepares for a scarcity that must result from a condition that is to cause it; nay, we have seen the forest deserted by the feathered tribe, and the heavier beasts retreat to their most retired fastnesses on the approach of pestilence, and only return when it has subsided. That all this is communicated to them, as a strictly conservative power, through some meteorological influence, I do not doubt. That they influence man in the same way, is equally probable. Probably no general fact is more universally observed than the connection of great devastating epidemics with remarkable distemperatures of the air, unusual droughts, or deluges, great extremes of heat or cold, continued calms, or winds blowing for a long time from unusual quarters, hurricanes, etc.—nay, whatever has been unusual in the elemental conditions, so has varied the health of man—indeed, of inferior creation, too, for they have their epidemics as well as man. Astrology ascribed them to the condition and attraction of the heavenly bodies, and various have been the conjectures and superstitions of man in relation to it. The 'constitution of the atmosphere' for good or for ill, with whatever term it has been clothed, has exacted the general credence of mankind.

It is a curious fact in corroboration of this statement, that these meteorological zones or conditions occur in cycles of tolerable regularity, in periods of about seventeen years. So have been the occurrence of great epidemic visitations — the recent cholera and other disastrous diseases are well-known exemplifications of it. Such lustra, and of about the same duration, have been palpably recognised in agricultural pursuits — in the return of good or bad crops — of the cane dying and being reproduced every seventeen years; and in the animal creation, in the visitations of locusts, the flight of pigeons, etc. By-and-by the returns will be more exact, the coincidence more clearly shown, the law established, or it will be abandoned. The spirit of philosophic research is now abroad, and the lovers of truth will assuredly find it.

Since the birth of meteorology, (and it has been a very slow and tardy parturition,) as it unfolded its treasures, as successive data have been recorded, comparisons been instituted, diseases have been ascribed to one or the other of the changes that have been noted. Certain maladies are known to predominate during certain seasons, and these are characterised by variations of heat and cold; and so of the different climates, north and south. The most remarkable characteristic, and what has earliest struck the attention of mankind, has been the duration of certain temperatures. It was, however, soon seen that variations of temperature alone were not sufficient to account for all the different diseases prevailing in certain seasons and climates, for when these were the same, the influence on the health of man was very different. More or less rain was found to have its influence; so was the condition of the winds; and so of atmospheric pressure. These still not satisfying inquiry into the causes of the influences we experienced, the *hygrometric* condition was investigated, and it was soon seen that the greatest value was to be attached to it — that it was the only varying constituent of the atmosphere,* often independent of rain and temperature;† that it

* For it should be looked upon in that light, though not *technically* so.

† Extraordinary as this may appear to the scientific reader, my journal clearly demonstrates it, and confirms a theory on the subject now in the press, by Professor Espy.

readily accounted for most of the influences ascribed to miasm. In proportion, then, to the observation of atmospheric phenomena, so have been their connection with morbid condition. It is much to be regretted that scientific meteorology has advanced very slowly, and has not been made a part of medical education, as it should have been, cotemporaneous with pathology.

If man was perfect in his condition, and all hygiênic rules fulfilled, and we had the means of knowing *all* meteorological conditions, we should probably be enabled to explain through them his entire liability to disease, and then probably prevent or correct the greater part. Here, with a medium temperature throughout the year of about 67° $\frac{13}{16}$, the winter mean being 54.48, the spring 73.56, the summer 79.38, and the autumn, 67.94, the range during the year rarely exceeding 50°, it is clear that neither the average temperature, nor the extremes, should alone be highly detrimental to health. Doubtless this condition is much influenced by the alternations of land and water; it is thus less hot than if altogether dry, and less cold from the same cause. This condition thus favoring us with regard to temperature, is productive of another result, not so favorable in relation to the hygrometric condition. In Table A you will find the actual amount of moisture in the atmosphere, both on the thermometric and hygrometric scales, its elasticity, the number of grains of moisture in each cubic foot, and also the drying power, or force of evaporation, three times a-day, for each month in the year, for an average of a long series of years, furnishing a very correct estimate of the climate in these highly important particulars.

The *hygrometric* condition is less known and appreciated than any other, and probably more nearly influences our sanitary state and enjoyments. Its frequent and great changes are often mistaken for *thermometric* alterations; many persons, feeling the change they experience, are astonished, on looking, to find the stationary condition of this latter; and these changes are sometimes very great. So far as philosophical experiments have gone, hardly a doubt exists of the fact that the winds that have obtained their appellations (such as the simoon, kamsin, etc.) from the pestilences they have borne upon their wings, have

derived their qualities mainly from their hygrometrical states;—one is loaded with vapor, saturates the atmosphere, prevents the decarbonizing power of oxygen on the blood, relaxes the system, increases the freedom of the secretions by which the blood is impoverished and kept prepared for the important purposes of life; while another, on the contrary, desiccates the blood, dries up the secretions by which it is depurated, and arrests vital action by rapidly depriving the system of the fluids requisite to sustain the organs in the due performance of their functions. In either excess, then, life is jeoparded, and much more than by mere extremes of temperature. This is clearly proved by the fact of the sickliest countries and seasons having the highest dew-point; that in elevated, or other regions, or at sea, where the highest salubrity is enjoyed, a medium hygrometric state is usually present, except when influenced by a prevalence of particular winds, that convey certain amounts of moisture with them. I think the present state of meteorological investigations will authorise me to announce these as *established facts.*

Table B furnishes you the *hygrometry* of the different winds blowing over New Orleans during an average of near eight years. They are doubtless much influenced by the remarkable manner in which the great delta is variegated with alternate expansions of land and water, viz., that all the northern winds, and even the western, have their dryness much decreased by blowing over large bodies of water; and my impression is, that Lake Pontchartrain will actually one day materially aid in protecting New Orleans from the violence of pestilences, by furnishing a moderate moisture to the atmosphere, and lessen that desiccating power that usually prevails at those periods when the swamps to the east and north-east of us are dried up. The modifying influence of a body of water of less than a mile in breadth, is conclusively shown by the difference between the two banks of the Mississippi river, where it runs east and west, the south side having a milder climate—vegetation earlier advances in the spring—the cane has a longer period to mature in autumn, and fruits that are occasionally cut off by the severity of weather on the north bank, are uninfluenced on the other.

I present you Table C, showing you what is the prevalent wind

during each successive month and season, on an average of ten years.

On an inspection of Table B, you will observe how much the moisture is increased during a CALM — that here it always exhibits the maximum of moisture. This condition of atmosphere is, fortunately for us, very rare in this country, unless artificially produced. Stagnation in air or water, nay, in any form of vegetable or animal life, seems to be against the laws and will of Providence. In air, where it exists for any length of time, there is hardly comfort, health, or even life. There are but two places on the globe mentioned by travellers — 'valleys of the shadow of death' — that cannot be visited by animated beings and returned from alive; places whitened by the bones of the victims of temerity, where, it is even said, that birds cannot fly over with impunity. In these positions, with a stagnant air, (and consequently high dew-point,) no change takes place, and it is in a position approximative to this that goitre and cretinism occur. There are deep ravines or gorges in the upper part of this and the adjoining States, near to which it is utterly unfit for man to reside, and especially at their outlets, (I speak from personal experience.) Occasionally, a body of air passes out of these hollows which is particularly injurious to the health of man. There, then, of course, with a stagnant air, is a high dew-point. Such, too, is the influence on health — and remarkably so in a warm climate, of living in houses that cannot be well ventilated, and having yards in which all the filth is located, where neither the light of heaven nor a breath of air can reach.

Stagnation in air or water is always more or less accompanied with impurity. Such, too, is the necessity of circulation in the great body of water which surrounds the globe, that an all-wise Providence has everywhere distributed it in currents, making it useful to its inhabitants, as well as man. Change, then, is the great law of being — it is essential both for purity and health.

The constant perflation which our position guarantees us, not only dries the country more rapidly, but cools the body down to the dew-point, or near it; certainly a most important, though unregarded, fact. From experiments instituted, it has been clearly proved that the quantity of fluid removed from the

system is nearly three times as much in a moderate breeze, and upwards of four times as much in a fresh wind, as in a calm or stagnant state of the atmosphere.

But there is another condition of the atmosphere almost as much overlooked as the hygrometric, and probably as much so, in a hygiênic point of view; I allude to the weight, or pressure of it, as indicated by the *barometer*. From the weight of the air being measured by mercury, which is so much heavier than air, (11,026 times,) the changes indicated by it are comparatively small. When the barometer is made of water, (which is only 815 times heavier than air,) the almost constant undulations and vibratory movements of the atmosphere are very apparent, and we can readily understand why more or less of this pressure or weight should influence us, not only in health, but disease. This will be better appreciated when we reflect that every square inch of our surfaces is exposed to a pressure of 14.6 lbs. Allowing, then, the surface of a man's body, of the medium size, to be 15 square feet, or 2,160 square inches, he suffers the enormous pressure of 31536 lbs., or more than fifteen tons! It is, nevertheless, passed by unnoticed by us ordinarily, because the pressure within and without are equal. Not so, however, with the *variations*, and, if we analyse them, they will appear immense. For instance, a fall or rise of $\frac{1}{10}$ of an inch (of the mercury) indicates a difference or removal of 100 lbs. to the square inch; of $\frac{2}{10}$, of 200 lbs.—not at all unusual in this country, though much more common to the north; a fall of $\frac{5}{10}$, of 500 lbs.; of 1 inch, of 1000 lbs.; of 3 inches, of 3000 lbs., etc. When the barometer falls, instead of feeling 'light,' as we should by the removal of any other weight from us, our breathing becomes difficult, feeble, frequent, and often terminates in an asthmatic paroxysm; the pulse is quick and most compressible; hemorrhages often occur, with a tendency to fainting; the secretions scanty and easily suppressed, and, at length, with a farther and greater exposure, apathy supervenes; we feel sluggish, heavy and spiritless, owing to the excessive expansion of the fluids in the vessels; we experience the want of that tonicity which braces us up, and we denominate it, by a singular perversion of sense and language, 'a heavy atmosphere'! That such a condition of

atmosphere should affect our healths is, on the least reflection, not at all extraordinary—and such is the fact. Illustrations in abundance could be furnished you—my time warns me to be content with one, and that relates to the City of Mexico. This large and magnificent capitol of that once wonderful people, is situated at an elevation of about 7.700 feet above the level of the sea, or our level, and, accordingly, disease is here modified by a pressure and elasticity due to a removal of near 15,000 lb. weight, arising from a barometric pressure of little over 25 inches, or near half the atmospheric pressure. And what we should theoretically anticipate from this condition of things, is actually found to take place, and that the diseases of the *thoracic cavity*, with a few of the liver, (and these mostly of abscess,) and a large proportion of dropsies, contribute nearly 34 per cent. of the entire mortality, calculated from an aggregate of a series of years, most carefully, by myself.

Farther to illustrate my position of the more or less influence of the pressure of the atmosphere on our systems, I will mention another, but opposite, example, the results of some experiments made by M. Junot, and described by him in the *Archives Générales de Médicine*, to show the bracing and cheering influence of *condensed air* on the system. It was found that a person so exposed, breathes with increased facility; he feels as if the capacity of the lungs was enlarged—his respirations become deeper and less frequent—he experiences in the course of a short time an agreeable glow in his chest, as if the pulmonary cells were becoming dilated with an elastic spirit, while the whole frame receives at each inspiration fresh vital impulsion; the functions of the brain are excited, the imagination becomes vivid, the ideas flow with delightful facility, digestion is rendered more active, as after gentle exercise in the air, because the secretory organs participate immediately in the increased energy of the arterial system. These experiments were made on persons in a mine in France, where men worked with a pressure of three atmospheres. Upon many of them the first sensations were painful, especially upon the eyes and ears, but ere long they became quite reconciled to the bracing element. Old asthmatics here become effective operatives, deaf persons recover their hear-

ing, while others are sensible to the slightest whisper. The latter phenomena doubtless proceeds from the strong pulses of the dense air upon the membrane of the drum of the ear. Men who descend to considerable depth in diving bells, experience a considerable augmentation of muscular energy; it infuses into the muscles such power, that they can easily execute double the work, without fatigue, which they are enabled to execute in the open air; they thereby acquire the power of bending over their knees strong bars of iron, which they would find quite inflexible by their utmost efforts, when drawn up to the surface.

From these statements of the effects of meteorological conditions — and they might be greatly enlarged — it is apparent to every one that their influence is very great. I now again invite your attention to Chart No. 1, giving a bird's-eye view of these variations, on *averages* of every month in the year (of course the *extremes* would exhibit them more palpably). There are two lines wherein are traced the temperatures for this city for every month in the year; and the Charts Nos. 2 and 3 will exhibit the mortality during the same period. No. 2 will show the different effects of the climate on RACES of the *same age*, (white and black) and No. 3, the direct effect on the mass monthly. Here, then, several facts are most clearly and palpably exhibited: first, the different mortalities for the different months; second, the modifying influence on the black and white race of the same age; third, the diverse effect on the different sexes of our own race, the cause of which I shall advert to hereafter. The slightest contemplation of these Charts will satisfy every one of the intimate bearing of meteorology (or climate) upon mortality.

Now, the important practical question arises, how far is it in the power of man so far to modify these conditions, when in excess, as to ameliorate their injurious influences. It is gratifying to state that much may be done in obeying the great command 'of subduing the soil and adapting it to the purposes of man;' by removing the forest growth, draining the swamps, and cultivating the soil, we lessen the amount of moisture, (which with us is of the greatest injury,) not only from the extent of area exchanging its moist, to a dry, condition, but we increase the perflation thereby, and hence, by increasing evaporation, (the

drying power,) and lowering the dew-point, we actually lower the temperature. This has been really accomplished here in relation to temperature, for, by comparing Lafon's tables of average temperature for New Orleans in 1807, '10, with the temperature observed by me here, 1833–'50, the average is less by nearly 3°, while the extremes are less. Chart 1 contains these two lines of temperatures, for comparison. The same Chart embraces, also, the average monthly temperatures of West Feliciana and Rapides, and are so designated; while below is demonstrated the DRY and RAINY SEASONS of four different sections of our state. Three of these correspond, viz., those of New Orleans, Placquemine and Rapides; while that of West Feliciana, although an average of about 13 years, seems to have had *three* rainy seasons; it was then at a somewhat earlier period than of the three first, and may be considered in its *transition state*, being cleared of its forest growth mainly since that period; it has probably obeyed what is more likely to be a law of the climate in relation to other portions.

II. Let us proceed to the second branch of our subject—"The Vital Statistics and Hygiène of the State." The period adopted for taking the mortality of the State, with its census, has been an unfortunate one for Louisiana, for during the whole period embraced under the order to the marshals and their deputies for this enumeration, viz., the year ending in June, 1850, has been precisely one of those periodical cycles alluded to in the former part of this report as about the septemdecennial period for the return of epidemic cholera. Such has been the fact, and large mortality has resulted in the whole zymotic class (to which cholera belongs); for although I have been enabled to separate the cholera from the other mortality in most of the parishes, yet the mortality has been much larger in the congenerous diseases of that class, than usual; and many parishes of the western district of the State, (see table E),* where we know that the mortality is not in ordinary years more

* I am indebted to the poltteness of Colonel Labuzan, deputy marshal, for most of this important and interesting table, and to C. Gayarré, Esq., Secretary of State, for the separate column of cholera in table E.

than one to one-and-a-half per cent. has been made, by this return, to show four, five, six, eight per cent., and upwards! This is to be deeply regretted, and the only remedy to be found is in the enactment of a registration law by the State legislature, through which the actual sanitary condition can be made known annually. From this somewhat sombre picture, let us turn to the Eastern District (see table F), which exhibits a degree of salubrity probably not surpassed on the globe. It will be observed, (for the aid of memory and observation) I have classed the parishes in both districts, into RIVER, SWAMP and UPLAND, according to their geographical location, at the foot of the table, and it will be seen that the average of the SWAMP parishes of Louisiana, which have heretofore been characterised, by those unacquainted with our State, as the dread and perennial abodes of disease and death, the mortality, (deducting cholera), has been less than one-half of one per cent. per annum (0.44), with the whites, and with it but $\frac{63}{100}$ of 1 per cent! In the river parishes it was a fraction over 1 per cent. (1.03); and with the upland, $1\frac{1}{2}$ per cent. (1.57)! We should be amply satisfied with this showing, and it is the only answer that is required to the blasting and enduring criticisms upon the salubrity of the rural districts of this country, which have so long abused both popular and scientific credulity abroad. I am duly sensible that the country is much more healthy now than when first subdued to the purposes of culture; it then partook, with all new countries, of the maladies incident to a change from a state of nature. Its sanitary condition since has been constantly advancing, under the ameliorating hand of cultivation, and probably no part of our common country is more favored with this choicest of blessings. In comparing the western with the eastern districts under the classification I have adopted, it will strike you how different they are as to salubrity — how much more healthy the eastern are; it is easily explained: all agricultural countries are most sickly when first opened to cultivation; — the eastern have passed through that lustrum — the western are now suffering under it.

With this cheering view of the salubrity of our rural districts, let us come nearer home, to one where the improving hand of man, although it has done something (but for the most part incident-

ally), yet much remains to be done, that experience, reason and science most unequivocally point out as *indispensable* to our progressive advancement. Neither our geographical nor topographical position, nor climatural influences, discourage the hope nor the prospect, that with proper care we can approximate that degree of salubrity enjoyed by the country around us. The permanent prosperity of this city mainly depends upon the degree of salubrity that is to be attained and enjoyed by the *mass* of the inhabitants,—not the wealthy portion, merely, who can take the 'wings of the morning and fly to the uttermost parts of the earth,' but of those that are to live and toil here all the year long, and also of that large class who visit us not only for the purposes of business but of pleasure. The subject, then, is of the last importance to us, and upon its proper solution depends our future welfare and advancement. Railroads, canals, and steam lines, are certainly of great importance; I would not underrate them if I could, but their primary tendency is to make your mart but a GREAT FACTORAGE—a depot for the sale and interchange of commodities, which can be effected in a few months. If the mass cannot be reasonably sure of living here as long as elsewhere, these facilities will only increase that system of absenteeism which is now retarding, like a curse from God, the population and progress of a city blessed with natural advantages which no other city on either continent, possesses. Two great difficulties encompass this subject, the removal of which is absolutely essential to its thorough investigation: the first is the great error under which we have long labored in relation to our salubrity; and the second is, the procurement of the actual facts to ascertain what that condition has been. The first is palpably a preliminary, for it is obviously useless, if not hurtful, to attempt an improvement, when it is believed none is needed; and to apply a remedy where there is no disease, and especially if this shall be an expensive one. 'If ignorance is bliss, it were a folly to be wise.' Here, however, the reverse is the actual truth; and it requires some moral courage to disabuse a community of a long and deeply-cherished error. We hug our chains with delight, and stone the man who will attempt to convince us that they are but the chains of sciolism and ignorance,

forgetful at the time that we but deceive ourselves, and that the world is not to be gulled at this enlightened epoch by our assertions, when unsupported by facts, and our self-complacency, when not based upon truth. Of the second, any one can convince himself who will undergo the arduous labor of seeking for such a record of births, deaths and marriages, as is kept by every other enlightened city of similar dimensions and importance. I trust, however, before the conclusion of this report, not only to prove to your satisfaction that you have long labored under a very serious error — one, in truth, very fatal to your prosperity, but that sufficient facts have been gathered, by years of research, to point out wherein it has existed,— enough to warrant the conclusion, that the 'conviction of an error' is, in this instance, at least equivalent 'to the establishment of a truth.'

The Vital Statistics of this city have been, until comparatively a recent period, almost untrodden ground: 'the horrid devastating epidemics' have been written of and described; the forbidden months, 'the dead season,' have hurried thousands from our midst upon the wings of wealth; catacombs of those who dared to tempt the lurid shores, or were destitute of the means of flight, have been long buried with their hopes, and been rapidly forgotten. The survivors alone have been counted; the dead have not been missed in the mighty throng that the love of thrift has brought to succeed them in the large spoils here offered to the industrious and enterprising, and the city has been characterised abroad as a great Golgotha, and signalised for its perennial pestilence. And what RECORD has been made of the *past*, for the benefit of the *future?—that future which to us is the present!* For more than fifty years this important entrepot has been in possession of a race believed to be the most intelligent and enterprising of all that dwell upon earth; yet they, in the great contest for mammon, have left but few records to tell us of that past, as a beacon and warning for the guidance of the future. The value of that knowledge will be appreciated, when we reflect that we grow wiser by degrees; that our present suffering depends upon our ignorance of the past; and to successive generations, the future can only be instructive, when the errors of the past are pointed out, and shunned as objects for our avoidance. To be

sure, suffering is the chastisement, in the hands of Wisdom, out of which is often wrought the most eminent good. The effort, then, that will carry success with it, will show that the chastening and the love have gone together.

The statistical data forming the basis of this report have been the slow accumulation of years, nor can I answer for their entire reliability; but then they are the best established facts I could procure on the subject, and it becomes us, as professional men and philosophical observers, to scrutinise them closely,—if they are false, to prove them so; for it is not by *denying* them, that we can correct the insalubrious condition of this city. Let us obtain the *truth*, by all means. If insalubrious, let us, by patient investigation, and putting all the facts within our reach together, ascend to the *causes*, and correct them, if possible. This is the true mode of being a real friend to our country, and not by flattery and concealment of the truth; for in this way we only deceive ourselves. No one abroad gives credit to the oft-repeated assurances of the salubrity of the city; and its influence, so far as believed by us, is most fatal to our safety, for it only superinduces that self-satisfaction at our situation, and apathy and opposition to improvement, and particularly if expensive, that presents an effectual barrier to our advancement. Figures (that is, statistics) is a great leveller; they are inexorable; they have little respect for partialities or prejudices; they often deal harshly with theories and speculations; they serve to correct the extravagancies of the imagination, and are often the surest tests of truth. The theory that cannot abide numerical ratios from well-ascertained and properly recorded facts, advances us but little, nay, retards us, in our progress towards true and exact knowledge. By their means we are enabled to remove the proverbial taunts of which our profession is the 'scape-goat.' They must put an end, if anything can, to the false facts which have so long cast derision on the profession. This, if anything, must place our noble calling on the list of the exact sciences, and aid largely in the safety and duration of human life.

In a State like Louisiana, whose main population has been made up by immigration, and that mostly within the last thirty

years, whose floating population has always been so large, and particularly in the cities and towns, (and there are no records to separate the native from the immigrant,) we are deficient in the main means, the basis, to acquire a knowledge of the effect of the climate upon health. This, however, is the less to be regretted, because the country is new — is constantly undergoing vast changes, which must, and always does, affect its sanitary condition.

You will have observed, in Table F, the ratios of mortality in the city and country are very different, and I could readily have furnished you extensive proofs of this general, and, indeed, universal fact. The causes are very obvious: — the population of the one lives in a crowded workshop, as it were, and breathes a confined and impure air; the population of the other spend the greater part of their time in, and breathe the pure air of heaven, where its impurities are diluted, scattered by the winds and oxydised in the sun, and where vegetation is constantly incorporating such elements as are noxious to man; while in cities, in proportion to density of population, there is constantly and insensibly thrown off an atmosphere of organic matter, which 'hangs over cities like a cloud,' slowly spreading, dispersed by the winds, and washed down by showers. 'It is a matter which *has lived*, is dead, has left the body, and is undergoing oxydation and decomposition into simpler than organic elements. The exhalations from sewers, church-yards, vaults, slaughter-houses, cess-pools, commingle in this atmosphere as polluted waters enter the Thames, (I am quoting from the report of the Registrar-General of England, but the same is equally, and, I will prove presently, more applicable to us,) and, notwithstanding the wonderful provision of nature for the speedy oxydation of organic matter in water and air, accumulate, and the density of the poison (for, in the transition of decay, it is a poison) is sufficient to impress its destructive action on the living, to receive and impart the processes of zymotic principles, to contaminate by a subtle, sickly, deadly medium, the people agglomerated in narrow streets and courts, down which no wind blows, and upon which the sun seldom shines.' It is to this that the high mortality of towns is owing,—living in and constantly

breathing an atmosphere charged with decomposing matter, of vegetable and animal origin; and, however small the quantity, even beyond the reach of chemical tests, we have abundant proofs of their existence, besides their effects, from comparative conditions. 'Sulphuretted hydrogen and ammonia, and other gases, may be diffused in quantities so great as to be detected by the senses, or by chemical analysis, or so minute and inodorous as to escape detection, and, in either case, may be the cause of disease. Some idea may be formed of the almost infinite divisibility of matter diffused in the atmosphere, from the fact that the hound, in the chase, discerns the tract of man and animals by the odoriferous particles thrown off from their foot-prints, and that we detect the odor of musk, notwithstanding the single grain from which it proceeds was deposited twenty years previous, and has since been constantly diffusing its particles in the surrounding atmosphere. The experiments of Thenard and Dupuytren proved that birds perished when the vapors of sulphuretted hydrogen and ammonia exist in the atmosphere to the extent of a fifteen-thousandth part, and that dogs are deprived of life when the air they breathe contains a thousandth part, and that a man cannot live when the air he inspires is impregnated with a three-hundredth part, and suffers in a corresponding degree when a less proportion of these poisonous gases exist. Persons frequently fall dead when entering a well, vault, tomb, sewer, or other place filled with these gases, or with stagnated air, in which are diffused emanations from decomposing animal, vegetable or mineral substances.' Leibig, with all the appliances of the Giessen laboratory, cannot yet detect any difference between the pure air of the Alps and the air through which the hound can tell a horse, a fox or a man has passed, or the air which observation shows will produce small-pox, measles, scarlatina, whooping-cough, dysentery, cholera, influenza, typhus, plague.* Man himself cannot breathe the same air with impunity: every minute of every day he appropriates to the vitalization of his blood twenty-four cubic inches of oxygen, and supplies its place with twenty-four inches of carbonic acid gas. When present in large quantities, from whatever cause produced, carbonic

* General Report of the Board of Health of England.

acid gas is destructive of life. Charcoal burning in a close room is a familiar illustration.

Such, then, is the immediate cause of the difference between city and country; and we shall perceive presently whence they proceed, and how far they are removable. The great mass of mankind is ignorant that, with the tempting and fascinating allurements of a city life, they are constantly inhaling the poison and imbibing the draught which will shorten their days, because their attention is not drawn to them, and they leave it to others, whose duty it thus becomes to apply the proper remedies. The great difference that exists between the mortality of city and country is well known; it sometimes amounts to near forty per cent. The cause is quite as well established. The inhabitants of a city are constantly deteriorating in vitality, and in the course of years whole families frequently waste away and become exinct, from this and other causes, unless recruited by a union with others from the country; and it is well known, most large cities are so sustained and increase. I have no room for details.

Let us apply these principles to New Orleans; but we will first present you the facts as far as they could be procured, of our mortality here, as far back as 1787, with gaps which no industry of mine could fill up. Upon this we base our deductions, (see Table D). To make up this table, I have not been able to deduct from it the accidents, and the numerous causes of death other than *disease*, nor have I deducted the epidemics, or been able to ascertain what portion of the population, native or immigrant, have fallen victims; but I have taken the *whole mortality* as I procured it, and have computed the per centage as usual. If the showing is a bad one, the *greater will be the need to remedy it*, and it will be shown in the sequel that this is much in our power.

In a country whose population is mainly made up by immigration, and in which the great influence is mostly felt, the *actual mortality* that occurs in the population *de facto* is the one of real importance, and not its influence on the native; and it is of little practical importance now, to inquire what may be the effect of the climate on the native. There is little that is permanent in the condition of the country; it is, has been, and will be, for a long time, in what may be termed its TRANSITION STATE.

When most of the physical changes, as draining, clearing, canaling the country, with such paving, sewerage and policing, as is indispensable for a fair trial of the position, is made, it will be time enough to discuss the effect of a stationary condition, and by that time we shall, probably, be supplied with some records, better than opinions, as a foundation to speculate on. This is the more especially true, because, with the changes induced in the country by its reduction from a wild forest growth to a high cultivation, the health of man particularly suffers; for in either of the two extremes, of a state of nature and a general cultivation, there is general health, with exceptions easily explained. Hence, then, the actual mortality in the *statu quo* is sufficient for our purpose; in fact, we are limited to that, as there are no details of their separation, nor even if we had them would they be of much practical value, unless we had a distinct acclimating disease, putting the acclimated and the native on the same footing. But how is that possible in a physical condition, on which it depends, which is constantly changing? A mere reference to the dates of these great improvements, whose influence on health at the moment is generally considered injurious, however beneficial afterwards, will convince you that there has been no stationary condition, for any great length of time, in and about this city, for more than sixty years, but more particularly since the digging of the bank canals; from the excavation of the Canal Carondelet, in 1794,–'7, to the digging of the canals in our rear, to drain, and the draining and removal of the forest growth in our swamp, which was, in fact, only completed during the last year. The Table D has the dates of these improvements. Hence, then, the discussion of the existence or necessity of any specified acclimation is pretty much superseded; for it is very doubtful if there can be any acclimation in a city whose *status*, or condition, is not somewhat stationary,—whose essential climatural features (or at least those which so greatly influence health) are so constantly varying. It is my impression that there cannot, and such is the result of my experience and observation. Indeed, the whole subject of acclimation, or the effect of habituation to a country protecting the party from the endemic diseases of that country, has been much overrated. Such acclimation is not even

pretended to be extended to northern climates, but why it should be limited to southern ones is not alleged. An examination into this subject, by the British army surgeons, both in the East and West Indies, shows that there exists no such protective influence. On the coast of Africa, no such immunity (nor in Egypt) is acquired,* and I am yet to be entirely satisfied that, of late years at least, such safety has been acquired here to any great extent, during the progress of the great physical alterations of which our city and neighborhood have been the theatre.

YELLOW FEVER, the great acclimating fever so called, (and it is doubtful whether there is any other, and none such has been alleged) was formerly easily characterized; its symptoms were less equivocal than they have been since, and no doubts were expressed in giving its appellation at an early period. For the truth of these statements, I must refer to the definite recollections of my cotemporaries of former times. The vast physical alterations to which I have reference, commenced to have more palpable progress but a few years previous to the division of the city, in 1835, and in 1836 there occurred a type of fever that the most experienced among us, at that time, were slow in christening as decided cases of yellow fever; and really there were numerous cases that we adjourned over the decision of until the subjects of them should be exposed to a fever of a more decided and unequivocal type. Ever since that period equivocal cases have been constantly occurring, and the more so of late years, so as to give rise to the question, often asked and discussed, of 'what is yellow fever?' and to the opinion expressed by several of our most experienced practitioners, that yellow fever often occurs in the same individual more than once, or, in other words, is no longer *a preventive of itself;* and hence, is no longer an acclimating

* I give the following table to show the difference in the mortality of different races during the plague at Alexandria in 1835: —

Negroes and Nubians	lost	84	per cent.	of their population.
Malays	"	61	do.	do.
Arabs (not soldiers)	"	55	do.	do.
Greeks	"	14	do.	do.
Jews, Armenians and Copts	"	12	do.	do.
Turks	"	11	do.	do.
Italians and others from the south of Europe	"	7	do.	do.
French, English, Prussians and Germans	"	5	do.	do.

disease; and that it occurs in the natives of the city, even at the earliest ages, (never alleged formerly); which, if true, settles that question. For the very idea that there is something specific required, arising from physical condition, to acclimate one to a place where an individual is *born, and has never left*, appears to me unnecessarily refined and entirely untenable. It has been expressed to me by some of our oldest inhabitants, those who have been observers of the disease twenty or thirty years ago, that it was no longer the same disease; that, in fact, the unequivocal malignancy and peculiar type which characterised it exists no longer; and this is most amply verified by the symptoms, aspect and history of the disease in its various stages, as seen and described by those who had witnessed it from 1804 to 1823, now in my library; and that for some years back it has been blending itself with the ordinary diseases of the country. I have elsewhere expressed this opinion, and have formed it after due deliberation.† Every now and then, we nevertheless meet with cases where there is no room for doubt, but they bear a very small proportion to the mass of cases which occur here every year.

This position is fully sustained by the record I now give, the result of an investigation into all the yellow fever years of which I could procure the details, and fortunately, after much research, I have been able to obtain those of the worst years. The disastrous year of 1847 may be considered an exception, and the remarkable mortality then may, in part, be attributed to the large temporary influx to our population, arising from a state of war, and 20,000 troops, with their proverbial recklessness, encamped for some time among us; and, also, that of later years, many

YEARS.	PER CENT. TO TOTAL MORTALITY OF THE YEAR.	RESULTS OF PERIODS.
1817	33.86	
1819	19.87	
1820	22.66	
1822	29.55	26.48
1829	35.71	28.13
1833	22.08	26.12
1839	22.45	
1841	29.84	
1842	10.78	19.74
1843	15.89	
1846	3.16	
1847	30.26	
1848	10.84	10.57
1849	7.79	
1850	1.33	

† Board of Health Report for 1849.

cases have been 'docketted' as yellow fever which would not have been so denominated in 1817,'22, etc. These valuable facts, taken in connection with what has been accomplished in other countries, (mentioned in a preceding part of this report,) and particularly in Egypt formerly, will fully bear me out in the opinion I have expressed, that, with the *completion of our physical improvements, yellow fever will have disappeared from among us.*

The facts—the painful, stubborn facts, which we can neither evade or deny, are, that for the last ten years our mortality has been upwards of 5½ per cent. per annum; and it is of a people who must be presumed to have had fair average constitutions, brought here, or raised here. They have died from *some cause* —they have died from *disease;* and it is immaterial whether it is called 'acclimating fever' under which they sunk, or intestinal, or pulmonary disease: it is the fact of death and loss to the public which is to be considered. Nor do I think it very material whether the mass of the mortality is of the recent arrivals, or not; it does not favor the argument, for, if they have been here but a very short period, the climate, or something, must be extremely lethiferous to have killed them so soon.

The term acclimation is very indefinite, so as to apply to records in civil life that can be of any use to the statistician. If it is confined to *yellow fever*, there is no record of it unless the subject falls a victim to it. There is no period of residence that will *certainly* exempt one from it, and the cemetery records show the fact that people sometimes die of yellow fever after having been here five, ten, or more years. Residence, then, does not prove it, for people die of other fevers, and all the class of zymotic diseases, after two, three, five, ten, and more years. Hence there is no immunity from death from fevers, and the nearest approach to it here, as elsewhere, is to be derived from the correctness of individual habits, and particularly in relation to temperance. It is unquestionably the result of experience, that these habits have a more injurious influence in this climate than farther north. This important truth is only in accordance with the characteristics of all warm climates, where it is universally acknowledged that such habits almost uniformly abbreviate

life, by acting in a line with all the injurious influences of such climate; accordingly, perhaps the most temperate people are to be found in warm climates.

All large cities are mainly aided by accessions of population from extraneous sources; to attempt, then, to separate this population, which in many American towns is so very large, would be, firstly, an impossible thing, and secondly, would be of little comparative avail, if accomplished. Although a large proportion of the mortality may be derived from the recent arrivals, yet he who has frequently examined and studied the Cemetery reports, (as every man who pretends to a desire to reach the truth should,) will be satisfied, that a large proportion of the mortality is also derived, not only from the natives, but from those whose residence here has been five, ten, twenty, thirty and forty years; but whether they have been here a longer or a shorter period is really of very little importance—the character for salubrity must be derived from the fact of their living or dying: now whether this takes place during what some are pleased to term the 'acclimating process, or period,' is of very little consequence; the stamp of vitativeness is what is desired, and the real question is—whether the chance of living in this city is as good as it is elsewhere in the ordinary fluctuating condition of the population, which characterises all American cities at least, and if not, what can be done to make it so, and what are the remedies to be applied?

The only application I propose to make of this remark is, that, with the extension of our improvements, the climate is becoming ameliorated, and that when, by the application of science and skill in completing the alterations in our physical condition, which can easily be accomplished, and the climate shall become fixed and stationary, my impression is, that the bugbear of yellow fever will have disappeared from among us. This is not only not unreasonable, but in accordance with all experience in various parts of our own country, where this formidable disease has been finally shut out by sanitary regulations. Passing from this, with which you are all familiar, I will mention some that are still more striking from abroad. England was in the seventeenth century desolated by plagues; it has disappeared under the influence of

these very regulations. Such, too, has been the fact in the greater part of Europe, where (in many parts of it) the average duration of life, up to the times we live in, has nearly doubled from the same cause. But I pass over these and nearly all the cities to the north and east of us in our own country, where it has been put to defiance by the strictness of their police regulations, to invite your attention to a country and climate in so many respects identical with our own, that I am sure it will be both striking and interesting,—I mean Egypt. The plague (which to that country is what the yellow fever is to this) exists in a sporadic form every year, and the epidemic form about every ten years, and where during a recent outbreak (in 1835) it was fatal to upwards of 66 per cent. of its inhabitants! nay, I may say, *natives*, consisting of Negroes, Malays and Arabs. I gave in a note to a preceding page the relative mortality, the difference falling upon the populations in close proportion to *their general sanitary condition.* The mortality was least among those Europeans who live in airy well-conditioned houses, and severest on those who live in the most crowded and filthiest manner. If we consult history, we shall find, that during the reign of the last of the Pharaohs,—during the 194 years of the occupation of Egypt by the Persians,—the 301 years during the dominion of Alexander,—the dynasty of the Ptolemies and a great portion of that of Rome, EGYPT WAS FREE FROM PLAGUE! This absence of any epidemic for the long space of time during which good administration and the sanitary police of the country conquered the producing causes of this most formidable malady, justifies the expectation that the same appliances will be followed by the same results here.* This should be very solacing to us, and should arouse and direct those energies, of which we have more than any other people on the face of the earth, and for the best reason, we are the actual beneficiaries of them, to adopt such remedies as will speedily correct the mortality now existing, and furnish the blessings of health to the finest country in America.

In elucidation of this great subject, let me now invite the attention of the Society particularly to the coincidence, if not

* See report of General Board of Health of England.

the connection of the great physical changes, noted in table D, with the salubrity. Thus, we had the first advent of yellow fever during the digging of the canal Carondelet, in 1794–'97. There was a great crevasse in 1816, and extensive paving in 1817—previous to the great fevers of 1817, '19;—extensive pavements in 1824, and up to 1832. The average mortality then was, you see, very great—more than five per cent. In 1830, a violent storm drove the waters of the lake up to Dauphin-street. In 1832–'5, we dug the great canal of the Bank, costing the lives of some 6 or 7000 of its laborers: what effect it had on the two great epidemics of cholera and yellow fever of 1832–'3, I leave it for you to judge. In 1836, the draining machine drained the large section below the canal Carondelet, and in 1835–'9, the forest growth was removed. We had epidemics in 1837, '9, '41: during 1845–'50 the important section betwen the two canals just in the rear of the heart of the city was cleared, and the immense canals dug and the whole drained; and the crevasse of 1849 extended the inundation of the river as far in the centre of the city as Carondelet-street. What influence they had on the disastrous mortality of 1847, '8, 9, and '50, of cholera and yellow fever, will not be left in much doubt, after the preceding statements. These coincidences are, at least, very remarkable; but that they have connection, seems to be in accordance with all experience of the effect of first disturbing the virgin soil of a country, and laying it bare to the influences of an almost tropical sun; of which examples enough might be adduced. These valuable statistical facts will also convince you of the propriety of making, *at once*, all those alterations and improvements in our physical condition upon which our future salubrity so much depends, and that they should be made during the winter season,* to which little attention, I believe, has been paid heretofore. But that all these improvements will finally restore salubrity to the city, is demonstrable *a priori*, from all that has occurred, not only in our own country, but abroad.

I have heretofore limited myself pretty much to the suburbs and neighborhood of the city, and to general causes showing con-

* See, in Chart No. I., the line of relative mortality of each month in the year.

ditions that have been most disastrous to the health of the place: let us approach a little nearer, and enter the city itself, and see if we cannot discover conditions deeply affecting its salubrity, and which would be highly injurious even in the latitude of fifty, much less at thirty.

The population of New Orleans and Lafayette, by the recent census, amounts to about 130,000, being near 18,000 to the square mile, showing by the census returns 6.16 to each house, with an average annual temperature of about 67°.

Let us see, then, to what the insalubrity of our city is mainly indebted. It is impaired by—

1st, Bad air;

2d, Privies, Cemeteries, various manufactories, stables, slaughter houses, etc.;

3d, Bad water—stagnant water;

4th, Bad habits;

5th, Bad milk.

It is quite out of the question that I should, in the compass of a single report, (already too much prolonged), go into detail in the examination of each of these and many other causes, by which the salubrity of New Orleans is impaired. I leave these, then, to where they most properly belong—to the special reports of your vigilant Board of Health, (where they have already attracted much notice), and proceed to consider into what they are resolvable, etc.

I. and II. *Bad air*, etc. The greatest sources of *impurity of air* arise from privies, the offal from kitchens, stables, stores, markets, streets, manufactories, etc.

It is estimated that a population of 130,000 produces annually 5633 tons of night soil, and 43,000 tons of urine: these may be doubled from domestic animals, and from other sources are at least as much more; making the frightful aggregate of about 150,000 tons, (including more than 3000 dead bodies buried in the Cemeteries in *the city limits*), of organic matter submitted to the putrefactive fermentation every year, under our very noses, on an area of 7¼ square miles! It is in vain to say that the night soil is removed to the river, urine sunk into the

soil, and the offals carried a mile or two in the rear, and bodies buried in vaults: all are long enough exposed to contaminate the atmosphere, and those buried are constantly impairing the purity of the air we breathe, and poisoning the water we daily drink.

III. Bad water is probably more injurious to health than bad air, as it acts far more rapidly when taken into the stomach than when taken into the lungs, for venous absorption admits of no selection; it is taken immediately into the lungs and circulated through the system, and as water is capable of holding in solution a greater quantity of foreign matter than air, it is more concentrated. Professor Hoffman has stated that 1000 gallons of water will dissolve 25 gallons of nitrogen, 6 gallons of oxygen, 1000 gallons of carbonic acid, 50,000* gallons of ammonia —the very gas which escapes so largely from privies and the police filth of every dirty town, carrying with it vegetable and animal matters in a high state of putrescency. Hence it is, that our cisterns, and particularly when near the privies, (*as they usually are!*) are sure to be contaminated thereby, and, indeed, every source of filth in its neighborhood.*

It must be highly gratifying to every intelligent mind to be enabled here to apply the facts derived from the deductions of science in the true explanation of this vitally-important subject. You will agree with me, I am sure, in the belief that the utility of science is to be estimated from its capacity to be applied to the practical purposes of life—advancing our comforts and heightening our enjoyments. We have this beautifully exemplified in the important fact stated in the former part of this report (and other and abundant evidences could be furnished) of the connection of a *still atmosphere with disease, and both with a high dew-point.* This presses on us, with all its force, the necessity of ventilation, and it becomes doubly important when with the *damp, still air* of our backyards, the accumulation of

* Since the delivery of this report, several who heard it have had their attention called to the subject, and consulted me in relation to sources of impurity of the water in their cisterns, from some cause to them unknown. On examination, it was satisfactorily ascertained that in several instances it was most palpably attributable to the vicinage of their privies—in others, to coal containing much sulphur, etc.

the concentrated filth of a family, including the privy and kitchen offal, in the direct neighborhood of that which is of the last importance to keep pure, viz., the water we drink and use for all domestic wants. Then comes the additionally important fact, derived from science, (mentioned bfore,) that all the noxious gases given off above by these excrementitious remains are absorbed, with destructive rapidity, by this very water! Thus the force and value of the highly satisfactory explanation becomes too apparent to be questioned, and too important to be overlooked.

IV. It is impossible to overlook the effects of intemperance, especially in a warm climate; probably no cause is so effective in undermining the constitution, impairing the *vis-vitæ*, and increasing the liability to disease, as it. There is no disease it does not aggravate; there is no constitution it benefits. The most cursory examination of our cemetery reports of the causes of death will satisfy any professional man, at least, how vast have been the additions to it from an undue indulgence in this vicious habit, and especially of all that large class which gives so baleful a reputation to this climate, I mean the zymotic.* To show the effect of habits upon health in this climate, I have constructed Chart III. to illustrate the different mortalities of males and females. Chart II. (exhibiting the different mortalities between blacks and whites) will show the same to a certain extent, for we find it to be to our *interest to keep our slaves, at least, temperate;* but it was particularly intended to exhibit the different influences of the climate upon the two races.

V. *Bad Milk.*— The mortality in the city of New Orleans of all under five years of age is upwards of 30 per cent., notwithstanding the proverbial kindliness of the climate to our young population, and the mildness of most of the diseases to which they are everywhere subject, such as cholera-infantum, whooping-cough, croup, etc., which, in the northern cities, takes

* To my unprofessional readers I may say, that this class particularly embraces endemic and epidemic diseases, as fevers, cholera, dysentery, diarrhœa, etc.

off more than 50 per cent., and in NewYork, 55 per cent. of all under that age! This immense mortality has been ascribed, nay, almost demonstrated, to arise, with every reasonable probability, to BAD MILK. That the same cause exists here, to some extent, there is no doubt.

Now, the great and important practical question, to which all else is subsidiary, occurs, CAN ALL THIS BE REMEDIED? Are we suffering from 'medicable ills'? or must a mortality of more than 5½ per cent. be suffered to continue — the city to remain slowly to increase, be stationary, or decline under the great rivalry of other more favored spots? as the rapid improvements of science can almost every where supply the almost unequalled advantages here offered to us by nature. Every intelligent physician will at once join in the impulsive response of every Louisianian, *that there must be remedies*, and that WE MUST APPLY THEM.

Let us see what they are:

The great object is to remove filth of all kinds as soon as possible, before it contaminates the air we breathe and the water we drink and cook with, and use for all domestic purposes. This is done by SEWERS, and there is no city in the world better adapted to them,—where the power to answer their purposes is to be had, as it were, without expense, and where they would do a tythe as much good as they would here. I have no time to go into details now; the demonstration has, I must hope, been made in the Board of Health Report of 1849, together with the plan, drawing, etc. It is not to be doubted that *all the filth* that contaminates the atmosphere, from which we have anything to fear, can thus be made away with, and that speedily:—night-soil, urine, kitchen and street filth, etc., all, indeed, excepting the dead, and the few cemeteries within the limits of the corporation should be immediately closed, and all slaughter-houses, manufactories and extensive stables, removed to the outskirts.

All present privies, below or in the soil, should be immediately *emptied and filled up*, and, in their places, jars or barrels, impermeable to fluids or gases, substituted for them, with proper

valvular coverings to prevent the escape of gases.* At present, the water is so near the surface, except in and near Levee-street, that no great depth can be excavated but the water rises in it near the surface, and, in rainy seasons, it is subject to overflow; and as we know that night-soil floats on water, *it is always* near the surface, and gives off its noxious gases to contaminate the atmosphere. The members of the Board of Health full well know the trouble our health wardens have every year, during the rainy season, (which occurs at mid-summer,) to remove the constant complaints made to us upon this subject. My impression is, that here is our only remedy,—*no under-ground privies;* and it will recommend itself by its great economy, as well as for its cleanliness and salubrity.

All the present draining-canals about the city should be covered, as the Melpomene, Gormley, Claiborne, and those going to the basins of the draining companies; low lots filled up, and all stagnant water prevented, for in this condition evaporation concentrates its poisons—vegetable infusoriæ, of the class called algæ, as well as fungoid vegetation, are rapidly generated. Many tribes of these vegetable productions appear to die with great rapidity—sometimes in one or two days—and then decompose. Immediately after these, animalcular life appears. Stagnant water is the most favorable to this order of vegetable productions, which, in giving rise to animalcular life, appears to keep pace with the animalised excreta discharged in the house-drainage of towns. Certain degrees of motion in water are unfavorable to the production of algæ and other infusorial plants, the tissues of which are destroyed by brisk motion.† The same round of life and death also takes place in open and shallow reservoirs, and in open cisterns where the water is frequently changed. The eminent German naturalist, Ehrenberg, as one result of very extended observations, established the fact that the existence of visible animalculæ generally indicates the pre-

* Since the delivery of this report, I understand there is a depot for, and a manufacturer of, an apparatus of this kind, in Exchange-alley, near the St. Louis Hotel.

† It has been demonstrated here that the filthy water of our gutters, by brisk motion, in the short space of a half-a-dozen squares, becomes much purified.

sence of a lower series of invisible animalculæ, descending in magnitude to the smallest monad of the most simple structure—so small, that there is probably no smaller organized creature on which it can feed, while, as is commonly conceived, by arresting organised matter on the very limits of the organic world, and converting it into its own nutriment, it furnishes, in its turn, sustenance to higher orders of animalcular life. Be this as it may, it is very certain that the presence of animalculæ in large numbers indicates the existence of animal and vegetable matter, usually in a state of decomposition, which invariably acts injuriously if the water containing them is used largely for purposes of food, and the effects may be more immediate and marked when the animalculæ are large and numerous.*

Light is also necessary for the production of infusoria and fungoid vegetation, and their formation is prevented by such covering as excludes the light and heat of the sun.

In an alluvion soil like ours, the most perfect paving is that which entirely excludes the possibility of evaporation from the subsoil, and that is by stone blocks united by cement with an angle of inclination to the side gutters, and these to the sewers. Running water from the river or water-works should be in constant use in dry weather in summer, and at such other times as may be ordered by the Board of Health: every street and yard should be cleared *every day, and the filth at once removed.* Health wardens should be appointed for every few squares, whose duty should be to inspect every yard and court *every day*, and every privy weekly or monthly. Trees should be planted in the streets to absorb the noxious gases and give out those which refresh and purify the atmosphere—to moderate the influence of reflected heat from brick walls and houses. It is a law of nature, that the vegetable and animal kingdoms should be, as it were, supplemental the one to the other: animals by breathing and exhaling air, load it with carbonic acid, and render it noxious to themselves; while vegetables absorb the acid gas, and give out oxygen in its stead, and thus supply the animal kingdom with vital air. Then again, whatever elements an animal takes from

* Vide Report of the General Board of Health of England.

the soil as food, it returns again to the earth in a different form, noxious to itself, but nevertheless furnishing to the vegetable kingdom abundant and wholesome nourishment. It is thus that the organic elements complete their circuit in living beings. Nothing is lost; it is only reproduced in another form. These principles lie at the root of the whole science of agriculture; while they constitute the basis of all economical and sanitary arrangements.*

It has been said by very high authority, Dr. Jarvis, that wherever differences of vitality are found to exist in connection with differences of circumstances, condition, locality, or manner of life, it may be assumed as probable, at least, if not certain, that the former are the consequences of the latter. It is an unquestionable principle, that in the operations of life, as well as in those of dead matter, there is no event without a cause adequate to produce it.

It is equally certain, that in life as well as in death, in similar circumstances and conditions, like causes produce like results. In this law of vital action, there is no uncertainty or invariableness. There is no more caprice or mystery in the ebb or flow of life,—in the maintenance of health, in the cause of sickness, or in the event of death, than in the flow and ebb of the tides, in the movement of the stars, or in the action of gravitation.

It must be admitted as an universal fact, that from any definite amount of vitalizing or destructive influence acting upon living beings, there will follow a definite and corresponding amount of health, strength and life, or of sickness, weakness and death. Between the amount of the cause and the amount of the effect there is an exact relation. No matter how weak or how powerful may be the deteriorating cause, precisely corresponding to that will be the deterioration.' It is thus demonstrable and demonstrated, if we ever expect or wish a healthy city, we must remove the known and well-ascertained causes of its insalubrity, and fortunately for us there is no difficulty about it which cannot be removed or surmounted, by determination, enterprise, science and capital. The health of a place is an indispensable element

* Vide 'Liverpool Health of Towns' Advocate.'

in its prosperity ; nothing can be permanent, without this greatest of blessings; and *whatever the cost*, in the end it will be *cheap*, if this shall be the result. The true wealth of a country consists in its people, and particularly at the productive age; of this age, Louisiana, and particularly New Orleans, has a large proportion: it is not only larger than any portion of the United States, but of any part of the world. The Chart No. III. I now again advert to, as well as all our Cemetery reports, to show that this, too, is the age of death here, and that the period is the autumn, and particularly September.* In a sickly country, not only two or more are constantly sick and withdrawn from the active duties of life, with all its attendant expenses, for every one that dies, (and, indeed, it is estimated, that there are actually twenty cases of sickness to one of death), but more, there is a half sickly valetudinarian existence, which materially trenches upon and consumes valuable time. Besides all this, a sickly country is the main cause of that absenteeism which not only deprives the State of the services of a large portion of her citizens, but abstracts from profitable use and investment at home, millions of her natural resources; retards the advancement of the permanent population of the city; keeps down the value of city property, and prevents all those social and literary enjoyments, and those extensive beneficences which a concentrated healthy population always gives rise to, and enhances and secures.

From the foregoing observations, several important facts are made perfectly clear to the mind of the reporter: First, that a large mortality has existed in this city for a long series of years, and particularly during the periods when the great physical changes have been made; second, that these causes are well known and perfectly removeable; third, with prudent habits, acclimation—if such a thing exists at all now, specifically, of which there is great doubt—is no longer to be dreaded; and it is satisfactorily shown that the yellow fever is departing from among us; and, finally, that with this difficulty removed, we have as fine a climate as any in America;—and that this is

* See also Chart No. I.—the mortuary line.

proved, not only from the strictest and most extensive meteorological observations, but from the remarkable salubrity enjoyed in the rural districts of the vicinity. To this I need add but one remark,—that, as our duties result from our relations—to the city—to ourselves—to society, (and it is utterly impossible to waive or alienate them,) every consideration of self-interest, of health, enjoyment and prosperity, as well as the warning voice of past pestilences, with the hope and the prospect of securing a comparative stationary condition, on the finest theatre in the world for advancement, while every city is outstripping us in the career of prosperous fortune, urge us to make the improvements required. The single fact—the basis of so many others—is, that capitalists, proverbially timid, will not invest permanently where the mortality is double what it is elsewhere; and you cannot expect an increase of a stationary population of that middle class, mechanics, manufacturers, laborers, and others—the bone and sinew of the land—where there is not as fair an average of health as can elsewhere be procured in our country.

But I must close. I have trespassed too long on your indulgence, but I cannot permit this opportunity to pass without again referring to the peculiar position in which our city is placed, even at the expense of some repetition: in sight, as it were, of the promised land, with the golden fruit ready to be plucked, we wilfully neglect the important subject of our sanitary relations, and thus prevent the fulfilment of our manifest destiny. I have bestowed much trouble on the important facts I have given you, presuming that the elucidation of the truth with regard to our actual condition will be the means of its correction. The time is truly passed in this enlightened age, when assertion will be taken for fact, and that an intelligent people can be long mystified by statements, however high their source. That many—nay, most of us—have been led to entertain erroneous impressions with regard to our sanitary condition, for a long series of years, is unquestionable. We have been so misled by *false* OFFICIAL STATEMENTS, from the highest sources*, which have

* United States census of 1840.

lulled us into a fatal security, superseded, in some measure, investigation into our actual condition, and thus prevented those corrective measures indispensable to our safety.

This excuse exists no longer; we now *know sufficient of our condition* to be convinced that vast improvements are required; and it would be a poor compliment to pay to an enlightened and wealthy community, as this is, to say that it will hesitate one moment to apply the proper remedy. I see a full guarantee of this promise in the newly-awakened interest this subject is assuming among us. When the curiosity of this public is fully aroused, it will only be satisfied with the truth. This truth is a truly painful one, but it is with as much pride as pleasure I venture the statement, corroborated by the laborious investigation of many years, that the *condition is a removeable one;* and that, by the application of science and skill to enterprise and industry, perseveringly pursued, all can be accomplished that the most sanguine could anticipate, or the most enthusiastic desire. No medical man of reputation would venture the assertion that our condition cannot be vastly ameliorated: the physical aspects of nature are as much, if not more susceptible of improvement for the sanitary condition, than for the enterprises of commerce. In the great competition for supremacy for the western trade, we do not start even in the race unless we are upon a par with them in a sanitary point of view. With all right in this, the game is in our own hands, and it is all comprehended in a few words,—sewerage, and a proper system of policeing. The meteorological tables will show you we have the ideal temperature for the most perfect health and enjoyment, with an almost entire freedom from those extremes which are so injurious to health farther north. It is true we have too much moisture, but then the improvements suggested would, if carried into effect, in a great measure remove this excess. With the adoption of these improvements as a basis, all else will soon follow, for, with health, a permanent population, wealth, taste, refinement will soon develop our delightful climate, and we shall be in the uninterrupted enjoyment of the most pleasant residence in America.

I trust, under your auspices, the public will be invited to take an interest in the important connection of experimental science

with practical, every-day facts, as shown, for instance, in the elucidation made by the hygrometer of the necessity of ventilation in this climate, in the condition which exists in the *still air* of most of our back yards, and too many of our houses, with what has been shown of its actual condition in a *calm atmosphere* in other situations;—of the connection of this atmosphere with moisture, and of moisture with disease. This has been most satisfactorily shown in Table B, of the hygrometry of the winds, of which various illustrations are given;—of the facility with which the water we drink and use for all culinary purposes becomes contaminated by being placed, by a singular perversion of good taste, in juxtaposition with all the filth of the family! I again call your attention, too, to the interesting statement in the text, first pointed out by a French meteorologist, of the discovery of the actual *means* of daily temperatures when certain plants (enumerated) would flower (and by implication, as it is a law of all plants); and in our country, where it has been shown of the return of great epidemic visitations, on the occurrence of certain meteorological conditions, known antecedent to their outbreak. The same principles applied to the cultivation of our great staples—sugar-cane and cotton—will announce to us, at the periods of their first maturation, (the flowering of the one and the ripening of the other,) the probable produce from each during that season, barring accidents; and, being the results of actual numerical calculation, will prevent that uncertainty, and of course put an end to that speculation, so ruinous to the producer.

These views alone, demonstrate the importance of keeping accurate meteorological records of our condition, not only for health, but for agriculture and commerce. Had the facts which these principles explain been known to our intelligent and enterprising planters, the products of our great staples would long since have been extended all over the State, and been much more certain crops than they now are. They mostly confine themselves, at present, to the very slow and expensive one of empirical experiments, instead of applying principles at once, and boldly dashing forward wherever they are applicable, with all the assurance of success which comes of scientific deduction. An illustration is furnished of this in the very recent cultivation of the cane in the Red river district, and the highlands of our State, where it is cultivated with as much success, if not more, than in the lower river districts to which it had been so long restricted, while it may as well have been cultivated in the others twenty years earlier.

But, gentlemen, there is another fact which claims your very special attention. No country of any importance is so shamefully destitute of records of the past, and particularly of mortuary records, as this

You would deem me very extravagant if I should inform you how much I think your interest has been sacrificed by this disgraceful neglect. With the finest climate, soil and position in our country, you are kept *half a century back* of what you would have been had the facts been known, by a proper registry-law of your births, deaths, and marriages, and a meteorological record of this and various parts of your State;—the one thoroughly to record what the climate is, and the other to exhibit the effects of that climate—each bearing upon the other. When the climate or condition of a place is found to be inimical to the health of its inhabitants, it must be attributable to certain causes, which should always lead to an examination. Experimental investigations, under the direction of science, are then employed to find them out, and when so discovered, there is little difficulty in removing them. I will give you a very striking instance: Some years ago, the people of Liverpool were in the habit of boasting of their health,—*as we are in the habit of doing*. The facts developed through the admirable registry-law of England, soon showed that they were suffering under the disastrous mortality of about 1 in 19, or 5.26 per cent.! They soon took the alarm; and, on examination, the cause was found palpably to arise mainly from their extensive, filthy cellar population This was immediately abated, and their salubrity was soon increased to 1 in 27, or 3.70 per cent.! The following pages will show a much larger mortality here: but the heart of every patriot and philanthropist among us may yet throb with delight, when, through a similar appliance, we shall be blessed with similar ameliorations.

From what has been before said, but necessarily alluded to very briefly, it is in the power of sanitary measures to accomplish almost everything we could desire. Those who have most fully investigated this subject, admit that by these means we can procure a state of health where the mortality does not exceed 2 per cent. Then cast your eyes over Table D, and you will see, through our neglect and ignorance — and, of course, the former resulting from the latter—we have actually had a mortality, during more than sixty years, on an average, of nearly twice and a half as much as that! and during some series of years near three and a half times as much! while, in some single years, it has exceeded *four times* as much, or 8.33 per cent.! though there are years in the group, as in 1812, when the mortality was only 2.22 per cent., and in 1827, when it was only 2.25. These are highly important facts to be remembered. They show that the former mortality does not so much belong to our position, AS ITS ABUSE; and it belongs to this intelligent public to determine *whether it shall be continued*, for it is hoped that it has been satisfactorily demonstrated in this report that it is entirely in our power to remove them. The longer continuance of such a state of things is not only ruinous to the best interests of the

city, but a reproach to the age we live in, if, by any means, they can be remedied.

In taking leave of this most important and interesting topic, I must express the hope I have that you will take a manly share in considering its bearing upon our sanitary state, and our future prosperity, and come with a free and strong help to its accomplishment. There is a mighty incubus that is paralysing the slumbering energies of this great community; and, with the long delusion we have labored under, it requires no ordinary moral courage to express the thorough conviction I entertain, sustained by the facts in this paper, that it arises mainly from the sanitary condition, in defiance of the boastings and taunts of those who draw their facts from their fancies, and construct their opinions upon their wishes. An average mortality of 5.83 per cent., or 1 in 17-70, for the last ten years, is rather a too serious matter for the city fathers to contemplate or set quiet under, while the remedies are in reach, and while they hold the power to apply them. Figures are stubborn things, for they are facts; the imagination quails under their influence; and all reasoning upon such topics without them, or against them, having nothing to rest upon, must fall to the ground.

The glaring fact of our almost stationary condition, in this AGE OF PROGRESS, stares us in the face. Enterprise is abroad. Vigorous competition is putting every place, whose position is far inferior to ours, naturally, ahead of us. The main responsibility rests, first, upon those who represent the city in the councils, to take the initiative, to which they have been repeatedly urged by the Board of Health, to adopt such a system of sanitary reform as will remove the greatest obstacles to our advancement. The future welfare of New Orleans depends upon their enlightened and zealous efforts for the public good. They cannot evade it, if they would. They have an OFFICIAL CONSULTATIVE Board* with whom to divide responsibility, who will cheerfully aid them in their important duties. A *longer postponement is a sacrifice of an important public duty.* Alone, I might shrink from the freedom I have taken with your actions and opinions; but, gentlemen, with the aid and sanction of the intelligent and scientific body I see before me, proper representatives of the enlightened sentiment of the profession in all parts of the State, I feel I am but the organ of your views. Though I will not presume to assert that you endorse all the opinions I have expressed in this report, yet, as the main facts are undeniable, and the deductions from them obvious and fair, I shall at least take it for granted that you so far concur with me that you join in the call for a thorough scrutiny into the facts, and, if they are sustained by the proofs, you will aid in the adoption of suitable measures to remove the causes of disease, and improve and promote the public health.

* Board of Health.

TABLE A.

AVERAGE MONTHLY HYGROMETRICAL CONDITION OF NEW ORLEANS,

At different periods of the day, for Eight Years.

	Dew-Point, Average,			*Hygrometric Scale.* Amount of Moisture, Average, (Saturation being 1000),			Elasticity of Vapor, Average,			Weight of Vapor in a cubic foot, in grains, *Average,*			Degree of Dryness on the Thermometric Scale, *Average,*		
	AT Sunrise.	AT Midday.	AT 9 P. M.	AT Sunrise	AT Midday	AT 9 P. M.	AT Sunrise	AT Midday	AT 9 P. M	AT Sunrise.	AT Midday.	AT 9 P. M.	AT Sunrise.	AT Midday.	AT 9 P. M.
January	0°.97	51°.71	55°.86	.878	.724	.876	.414	.442	.490	4.663	4.889	5.445	4°.05	9°.40	4.07
February	43 .59	50 .86	45 .06	.822	.636	.714	.319	.408	.340	3.658	4.483	3.700	5 .88	13 .66	10.00
March	58 .60	58 .57	56 .08	.863	.678	.731	.511	.542	.492	5.667	5.933	5.425	4 .26	14 .09	7.93
April	59 .46	67 .06	61 .67	.957	.695	.803	.551	.673	.588	6.102	7.453	6.432	2 .54	13 .59	6.83
May	65 .48	66 .50	67 .72	.919	.661	.844	.667	.719	.716	7.212	7.638	7.757	2 .75	13 .08	5.51
June	71 .38	73 .95	73 .16	.937	.718	.852	.827	.868	.853	8·934	9.260	9.158	2 .70	10 .46	4.87
July	76 .24	75 .42	75 .50	.970	.767	.890	.910	.931	.936	10.161	9.564	9.962	1 .56	8 .69	3.73
August	75 ·85	75 .59	77 .06	.956	.739	.879	.931	.918	.968	10.039	9.601	10.336	1 .77	9 .82	4.18
September . . .	70 .61	73 .68	73 .66	.909	.746	.792	.798	.867	.868	8.637	9.216	9.46	2 .70	9 .95	7.14
October	60 .39	62 .73	61 .80	.892	.707	.833	.562	.611	.590	6.201	6.488	6.550	3 .91	12 .26	5.95
November . . .	50 .17	54 .27	55 .87	.839	.651	.842	.442	.453	.496	4.881	5.005	5.534	5 .36	12 .56	5.87
December	51 .15	52 .43	51 .97	.914	.719	.856	.389	.420	.429	4.941	4.530	5.374	2 .08	9 .52	4.55
TOTALS, {Annual average.}	61 .16	63 .56	62 .95	.905	.703	8.26	.610	.654	.647	6.758	7.007	6.678	3 .30	11 .42	5.89

TABLE B.

HYGROMETRY OF EACH OF THE PRINCIPAL WINDS AT NEW ORLEANS, AND WHEN CALM.

DEGREE OF DRYING POWER.			AMOUNT OF MOISTURE. [Saturation being 1000.]			ELASTICITY OF THE VAPOR.			WEIGHT OF VAPOR IN A CUBIC FOOT, *In grains.*		
1st	N.W.	11°.29	1st	N.W.	.677	1st	N.W.	.468	1st	N.W.	5.136
2d	N.	10 .06	2d	N.	.698	2d	N.	.534	2d	N.	5.819
3d	S.W.	10 .03	3d	S.W.	.727	3d	N.E.	.630	3d	N.E.	6.847
4th	W.	10 .01	4th	W.	.740	4th	W.	.646	4th	W.	6.915
5th	N.E.	9 .28	5th	S.	.761	5th	E.	.646	5th	S.	7.181
6th	E.	8 .84	6th	N.E.	.763	6th	S.W.	.664	6th	E.	7.213
7th	S.	8 .21	7th	E.	.768	7th	S.	.743	7th	S.W.	7.229
8th	S.E.	7 .56	8th	S.E.	.720	8th	S.E.	.759	8th	S.E.	8.030
9th	CALM	5 .17	9th	CALM.	.929	9th	CALM.	.761	9th	CALM.	8.254

N. B.— To my scientific readers I observe that some few small errors in the above could only have been ascertained when the *results* were arrived at — but at too late a period to re-calculate sixty pages of figures.

TABLE C.

STATEMENT OF THE WINDS IN NEW ORLEANS — BY MONTHS AND SEASONS.

	N.	N.E.	E.	S.E.	S.	S.W	W.	N.W	Calm.	Explanation.
January	4.½	4.½	5.	3.½	3.½	1.¾	2.	2.½	0.½	Being on an average of 11 years — 1835-'42 and '48-'50.
February	4.½	3.½	4.¾	2.¾	3.	2.½	1.½	4.	0.½	
March	4.½	2.¾	5.½	3.½	7.	2.½	1.½	2.½	0.½	
April	1.½	2.¾	6.½	4.¾	6.¾	2.½	2.¾	2.	0.½	
May	2.¾	2.¾	5.½	4.	6.¾	3.¾	1.½	2.½	1.	
June	1.¾	1.¾	6.½	4.½	4.¾	6.	1.¾	1.½	1.	
July	1.	2.	5.	5.	6.	4.	3.	1.½	3.	
August	3.½	3.½	4.	3.½	4.½	4.	3.½	1.¾	2.	
September	6.	6.½	6.½	1.¾	2.½	1.½	1.¾	1.¾	0.¾	
October	6.½	5.½	7.	1.½	1.¾	1.	2.	3.	1.	
November	5.¾	1.	4.¾	3.½	3.½	1.	1.	3.½	0.½	
December	7.½	4.½	5.½	3.	3.	1.¾	1.¾	1.¾	1.½	

BY SEASONS.

Winter	16.	11.¾	15.½	9.	9.½	6.	5.	8.½	2.	Total number of days' wind each season.
Spring	8.½	8.½	17.½	12.	20.½	8.¾	5.½	6.¾	1.¾	
Summer	6.½	7.½	15.½	13.	15.½	14.	8.	4.¾	6.	
Autumn	18.½	12.¾	18.	6.½	7.½	3.½	4.¾	8.½	2.½	
Winter	1st	3d	2d	5th	4th	7th	8th	6th	9th	Relative frequency of each wind during each season.
Spring	5th	6th	2d	3d	1st	4th	8th	7th	9th	
Summer	7th	6th	1st	4th	2d	3d	5th	8th	9th	
Autumn	1st	3d	2d	6th	5th	8th	7th	4th	9th	

BY THE YEAR.

	3d	5th	1st	4th	2d	6th	8th	7th	9th
	49.	40.	66.½	40.¾	52.½	32.½	23.½	27.½	12.½

Relative frequency of each wind during the year.

TABLE D.

Exhibiting the Mortality of the city of New Orleans since 1787, (with exceptions as stated,) with the ratios, the relative proportion dying at the Charity Hospital, and the dates of great physical changes in and about the city.

YEARS EMBRACED.	AVERAGE POPULATION.	AVERAGE MORTALITY.	RATIO 1 to ——	RATIO PER CENT	AVERAGE CHARITY HOSPITAL MORTALITY TO CITY MORTALITY. PER CENT.	DATES OF PHYSICAL ALTERATIONS AND IMPROVEMENTS IN CITY AND NEIGHBORHOOD.
10 years, 1787–'97.	7.020	.488	14.38	6.95	- - -	1785, '91, '99 — Crevasses above, affecting the city. 1796 — Fortifications made around the city, and surrounded by trenches. 1794–'97 — Canal Carondelet dug.
6 years, 1811–'15.	28.741	.989	30.82	3.42	- - -	1811 — Canal Carondelet cleaned out.
1816–'20.	37.985	1.517	29.15	3.95	17.77	1816 — Crevasse. 1817 — First Pavements commenced. 1820 — Wooden side-walks, and curbing removed and replaced with stone. 1817–'20 — Large enclosures of the batture.†
*4 years, omitting 1821. 1821–'25.	44.539	2.085	21.17	4.72	17.60	1824 — Gormley's Canal and Basin dug, about 1824–'28. 1824–'32 — Extensive paving done.
1826–'30.	47.834	1.707	27.68	3.61	21.82	1825–'28 — Melpomene Canal adopted from a natural drain, cleaned out and deepened.
*4 years, omitting 1832. 1831–'35.	58.570	3.503	18.22	5.92	27.11	1831 — Violent storm inundated back part of the city, to Dauphin street. 1832–'35 — The Bank Canal of the 2d municipality dug to the lake — 7 miles. 1832–'34 — Extensive paving.
*4 years, omitting 1837. 1836–'40.	74.262	2.942	25.39	3.96	27.11	1835–'39 — Forest growth cut down in rear of city, first municipality. 1836 — Draining machine on Bayou St. John, drained the section in rear of first municipality. 1837, October — Violent storm inundated the rear of the city. Draining company continued their operations.
1841–'45.	90.000	3.993	23.29	4.48	21.20	1844 — Violent storm inundated the city up to Burgundy street.
1846–'50. N.O. and Lafayette, for the last year.	109.693	7.622	15.33	6.93	24.71	1845–'50 — That section of the rear of the city between the canals Carondelet and Bank, in the rear of the central parts of the city, ditched, drained, and forest growth removed. 1849, May and June — Extensive inundation from Sauve Crevasse, extending as high up as Carondelet street.
TOTALS..			23.19	4.87	22.38	

* The total mortality of these years could not be procured.

† Extract from the report of the Physico-Medical Society on the epidemic yellow fever of 1820, by Drs. Randolph, Davidson and Marshall: 'We would remind the Society of the evident co-existance existing between the enclosure of the batture and the recent unusual consecution of epidemic fevers in this city.

P.S I intended to have added a column embracing the average annual immigration from abroad; but the record has not been retained at our customhouse anterior to 1845, since when it has averaged about 30,000 per annum; but very few arriving in the summer and fall months.

TABLE E.

STATEMENT of the number of FREE and SLAVE POPULATION, as well as the number of Deaths from CHOLERA and other Diseases, in the Parishes of the Western District of Louisiana, as taken by the Assistant Marshals, and returned to the United States Marshal's office, under the Census Act of 23d May, 1850.

PARISHES.	INHABITANTS.		POPULATION W. District	Mortality		TOTAL Cholera,	TOTAL Mortality	TOTAL MORTALITY PER CENT. WITHOUT CHOLERA.	TOTAL MORTALITY PER CENT. INCLUDING CHOLERA.
	FREE.	SLAVES.	TOTAL.	FREE. CHOLERA	SLAVES CHOLERA	SEPARATED.			
Carroll	2,346	6,443	8,789	12	110	122	405	3.22	4.61
Madison	1,418	7,350	8,768	9	138	147	417	3.08	4.75
Tensas	902	8,138	9,040	11	131	142	319	1.96	3.52
Concordia	824	6,934	7,758	3	52	55	171	1.50	2.20
Ouachita	2,300	2,708	5,008	..	..	..	117	....	2.33
Morehouse	1,907	2,006	3,913	8	4	12	260	6.34	6.64
Union	4,778	3,425	8,203	7	4	11	716	8.59	8.72
Jackson	3,407	2,243	5,650	8	4	12	313	5.50	5.53
Catahoula	3,616	3,548	7,164	17	30	47	443	5.52	6.18
Franklin	1,681	1,573	3,254	1	3	4	283	8.58	8.67
Caldwell	1,590	1,232	2,822	2	3	5	185	6.38	6.55
Claiborne	4,949	2,522	7,471	2	4	6	612	8.11	8.19
Bossier	2,507	4,788	7,295	1	19	20	368	4.77	5.05
De Soto	3,566	4,450	8,016	9	9	18	496	5.96	6.18
Caddo	3,667	6,468	10,135	..	..	..	330	....	3.25
Natchitoches	6,345	7,627	13,972	4	15	19	848	5.93	6.06
Sabine	3,347	1,167	4,514	..	6	6	538	11.80	11.91
Rapides*	4,000	9,000	13,000	..	..	..	250	1.49	1.92
Avoyelles	4,166	5,161	9,327	4	26	30	392	3.88	4.20
St. Landry	11,384	10,871	22,255	..	..	..	775	3.29	3.48
Calcasieu	2,957	951	3,908	..	..	..	239	....	6.10
Lafayette	3,560	3,183	6,743	..	..	..	283	....	4.19
Vermillion	2,342	1,067	3,409	1	1	2	218	6.33	6.39
St. Martin	5,198	6,468	11,666	..	..	..	422	3.39	3.61
St. Mary	3,911	9,940	13,851	..	..	..	208	1.44	1.50
Bienville	3,644	1,895	5,539	4	2	6	275	5.04	5.15
TOTALS	90,312	121,158	211,470	103	561	664	9,883	5.09	5.22

Classification of the Parishes of the Western District of Louisiana:—

	INCLUDING CHOLERA.	EXCLUDING CHOLERA.	
1. Ratio of mortality in river parishes, per cent.	3.81	2.46	White and Colored.
2. Do. do. in swamp parishes do	3.52	3.42	
3. Do. do. in upland parishes do.	6.21	6.08	

* These numbers are furnished by a correspondent — not published by the Deputy Marshal.

TABLE F. . . . . .

STATEMENT of the number of DWELLING HOUSES, FREE and SLAVE POPULATION, as well Eastern District of Louisiana, as taken by the different Assistant Marshals, and

	PARISHES.	Number of Dwellings.	INHABITANTS. FREE.	INHABITANTS. SLAVES.	Population East. District of Louisiana. TOTAL.
	ORLEANS, *First Municipality*—				
	1st, 2d, and 3d Wards	2154	9,668	1,974	11,642
	4th, 5th, 6th and 7th Wards.	3184	23,893	6,136	30,029
	Second Municipality—				
1	1st and 2d Wards	1,558	7,676	1,107	8,783
	3d Ward.....	1,752	9,072	978	10,050
	4th Ward.....	861	5,680	840	6,520
	5th, 6th and 7th Wards.....	2,673	23,519	3,162	26,681
	Third Municipality	3,870	19,890	2,812	22,702
	Right bank of Mississippi river.....	401	2,029	1,057	3,086
2	JEFFERSON				
	1st, 2d, and 3d Wards, Lafayette	2,056	10,929	1,371	12,300
	5th Ward, City of Lafayette, and remainder of Parish	1,769	7,801	4,825	12,626
3	Ascension	755	3,486	7,266	10,752
4	Assumption.....	926	5,197	5,341	10,538
5	East Feliciana	712	4,084	9,512	13,596
6	West Feliciana	599	2,579	10,666	13,245
7	East Baton Rouge	1044	5,627	6,351	11,978
8	West Baton Rouge	392	1,920	4,351	6,271
9	Iberville	640	3,680	8,607	12,287
10	Lafourche Interior	938	5,166	4,368	9,534
11	Livingston	480	2,543	841	3,384
12	Plaquemine	615	2,611	4,779	7,390
13	Point Coupée	760	3,528	7,812	11,340
14	St. Bernard	283	1,479	2,284	3,763
15	St. Charles.....	191	988	4,132	5,120
16	St. John the Baptist	530	2,778	4,540	7,318
17	St. James.....	591	3,347	7,751	11,098
18	St. Tammany.....	786	4,003	2,363	6,366
19	St. Helen	390	2,366	2,196	4,562
20	Terre Bonne	550	3,396	4,331	7,727
21	Washington	406	2,371	1,037	3,408
	TOTALS	31,266	181,306	122,790	304,096

Mortality of the Country Parishes of Louisiana—Eastern District of La.

	Classification of the Parishes.	Including Cholera. WHITES PER CENT.	Including Cholera. COLORED PER CENT.	Including Cholera. BOTH, PER CENT.	Excluding Cholera. WHITES, PER CENT.	Excluding Cholera. COLORED, PER CENT.	Excluding Cholera. BOTH, PER CENT.
1	Ratio of Mortality of the River Parishes, excluding New Orleans, Lafayette and West Feliciana, and including other river towns	2.69	2.45	2.57	1.03	1.42	1.29
2	Ratio of Mortality of the Swamp Parishes	0.63	1.48	1.05	0.44	0.75	0.60
3	Ratio of Mortality of the Upland Parishes	1.74	1.77	1.75	1.57	1.61	1.57

. . . . . TABLE F.

as the number of Deaths from CHOLERA and other Diseases, in the respective Parishes of the returned to the United States Marshal's office, under the Census Act of 23d May, 1850.

Mortality Free Inhabitants.			Mortality Slave Inhabitants.			Ratios of Mortality per cent.			
CHOLERA	OTHER DISEASES.	TOTAL.	CHOLERA.	OTHER DISEASES.	TOTAL.	WHITES. MORTALITY PER CENT. WITHOUT CHOLERA.	COLORED. MORTALITY PER CENT. WITHOUT CHOLERA.	TOTAL MORTALITY PER CENT. WITHOUT CHOLERA.	TOTAL MORTALITY PER CENT. INCLUDING CHOLERA.
22	86	108	19	20	39	0.89	1.01	0.91	1.28
63	281	344	30	58	88	1.18	0.94	1.13	1.43
26	146	172	7	24	31	1.90	2.16	1.94	2.31
51	89	140	6	5	11	0 98	0.51	0.93	1.50
2	11	13	...	1	1	0.20	0.12	0.18	0.21
460	1702	2162	7	22	29	7.24	0.70	6.46	8.21 †
60	302	362	10	71	81	1.52	2.52	1.64	1.95
3	33	36	3	22	25	1.63	2.08	1.78	1.97
52	283	335	8	46	54	2.60	3.36	2.67	3.16
						2.01	1.48	1.96	2.44 *
34	115	149	49	84	133	1.48	1.74	1.58	2.23
3	34	37	81	22	103	0.98	1.11	1.07	1.30
36	41	77	144	59	203	0.79	1.10	0.95	2.66
4	86	90	3	176	179	2.10	1.85	1.93	1.97
13	67	80	18	279	297	2.60	2.62	2.61	2.85
45	101	146	67	98	165	1.79	1.54	1.66	2.60
21	28	49	88	84	172	1.45	1.93	1.78	3.52
14	23	37	143	170	313	0.62	1.97	1.57	2·84
....	...	...	...	9	9	....	0.20	0.10	0.10
5	32	37	5	15	20	1.25	1.78	1.38	1.69
27	56	83	81	83	164	2.14	1.76	1.88	3.34
5	8	13	35	100	135	0.22	1.28	0.95	1.30
...	4	4	9	14	23	0.27	0.61	0.48	0.72
3	12	15	49	61	110	1.21	1.47	1.42	2.44
9	17	26	78	51	129	0.61	1.12	0.93	2.10
5	19	24	89	105	194	0.60	1.15	0.91	1.96
...	58	58	4	41	45	1.45	1.74	1.55	1.62
...	26	26	...	25	25	1.10	1.14	1.12	1.12
2	18	20	7	42	49	0.53	0.97	0.76	0.89
...	23	23	...	6	6	0.97	0.58	0.85	0.85
965	3701	4666	1040	1793	2833	1.05	1.38	1.27	1.90 *

U. S. Marshal's Office,
Eastern District of Louisiana.

New Orleans, April 15, 1850.

WM. P. SCOTT, U. S. M.
By CHAS. A. LABUZAN,
D'y Marshal.

To E. H. BARTON, M.D.

*I have added the per centage of Mortality separately from the cities of New Orleans and Lafayette, as that is done above.
E. H. B

† The Charity Hospital is in this ward, where all the sick emigrants go on their arrival at New Orleans.

EXPLANATION.

In explanation of Tables 'E' and 'F,' it is necessary to state that the deputy marshals, in making their general returns, only specify 'free' and 'slave,' hence the free negroes of the State are classed with the 'white,' and allowance should be made in the mortuary estimates of those tables, until the fiscal digestion of all the specific returns, from Washington. This explanation does not apply to any other portion of the text or the charts, where a contrast is instituted between 'white' and 'colored.'

[*Note to page* 31.]

The true philosophy of what is very loosely called 'acclimation,' is very little understood—the materials do not exist. We know that one latitude, or zone of the earth, is different in what is technically called its 'climate,' from another; that these even differ in their longitudes; that elevation or depression, and the vicinage of mountains, plains or great bodies of water, materially influence it; but farther we cannot go. How difference of soil affects it we know not; that it does affect plants is undeniable; and that even contiguous fields produce different varieties of fruit and other productions; but the cause here is palpable enough—they derive what supports their existence from it, we never do. All we can say, then, positively, and from which to reason, is, that from these positions result a difference of meteorological condition. The exponent, then, of climate, so far as our present positive knowledge extends, is Meteorology. Now, from our ignorance of meteorological conditions, with almost one exception, of different countries, we are limited to the explanation which that one furnishes,—I mean difference of temperature. Let us see, then, what this supplies. The inhabitants of the northern, or cool regions, are generally of the sanguine temperament, with a large development of their sanguiferous and pulmonary systems, with a corresponding power of generating heat, to adapt them to the wants of such a climate. On the contrary, the natives of hot regions have usually the bilious temperament, with the reverse organization, because the requirements of this climate are different, and they get rid of their excess of carbonic acid through other emunctories, and they take in less through their lungs, it not being required, and if it was taken in, they would be over-heated by the combustion it would excite in their systems; hence, then, the predominance of the bilious temperament in hot climates; and it is a matter of observation that temperaments are convertible by long residence—certainly the sanguine becomes bilious thro
tions,—and in accordance with these principles
the North, of the bilious temperament, is

the South than he of the sanguine. Dr. Cartwright has clearly shown that the negro requires less pure, or oxygenated, air than the white man, in their much greater adaptation to hot climates. Here, then, is *one positive fact* by which acclimation is explained; and as man is almost the only animal that can adapt himself to different climates, he clearly accomplishes it by the exercise of his intellectual powers in accommodating himself to different temperatures, mainly, by changes in his dress and mode of living; while other animals who survive this change, in a great degree lose the coverings which protected them from northern rigors, on coming to the South. Is there any other *positive, undeniable fact upon the subject?* Habituation to a climate to constitute it—that is, habituation to a certain fixed atmospherical condition, —(and it is owing to our ignorance of the other departments of Meteorology that we are at present compelled to limit it to this)—is, then, but *habituation to a certain range of temperature.* All other explanations are hypothetical—but *petitiones principii,*—and based upon assumptions that are unphilosophical to admit, and I pass them by. The troops transferred by the Pacha of Egypt to the comparatively cold mountains of Greece, from the torrid regions of southern Egypt and Nubia, perished like rotten sheep, without apparent disease. The Laplander, transplanted to Louisiana, would die from excessive heat, if his ordinary power of generating caloric for his indispensable wants, in his cold regions, was not immediately restrained here. Negroes, transferred to colder climates from Africa or the South, suffer great mortality from the change, and particularly from pulmonary disease, from the increased activity required through this system of supplying heat. Monkeys carried to England all die speedily, and mainly of the same disease, if not confined to an atmosphere artificially heated for them; and these illustrations* could be vastly extended in corroboration of the position assumed.

In this view of the subject, acclimation has a wider range and a more specific application, and is not confined to those coming South from the the North. But they are, I believe, unnecessary, for actual experience, *when properly tested*, is against the admission of the absolute necessity of acclimation, to any great extent, from one temperate region to another; at all events, it must be abandoned so far as it depends upon a *fixed physical condition*, as it regards us, for that we have not had for many years.

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*ture on Acclimation, by the author, delivered to and published by his pupils, the chair of Theory and Practice of Medicine and Clinical College of Louisiana, in 1837.

APPENDIX.

I have been kindly supplied (and mainly through Mr. H. G. Heartt, Actuary of the Mutual Benefit Insurance Company of this city) with the subjoined tables and data for the calculations from the other life insurance offices in this city, and as they furnish a strong argument corroborating the statement I have made in the 'Report,' it affords me great pleasure to add them here. That position is briefly this: that this climate is not *lethale per se*, but has been made so by superadded or abused conditions — by circumstances extraneous to the physical condition; and this is demonstrated by the health of the neighborhood, the supervention of years of remarkable salubrity, and the great difference in the mortality of males and females in this city; that difference being sometimes 7, and sometimes as many as 13 to 1, in favor of females! arising mainly from difference in mode of life; being an eloquent testimony in favor of correct habits, in this respect, never to be overlooked. I now invite the attention of the reader to the singular fact — to show the influence of hygienic rules — that, whereas the mortality of the *whites* in this climate for the last two years (and select these because the mortality has been very large from cholera, etc., and they are of the same date as that embraced by the Insurance Companies) has been 9.83 per cent., or 1 in 10.36; and that of *negroes*, 3.44 per cent., or 1 in 29.66; while, by the materials furnished, this is entirely reversed, and the white mortality is actually only 0.77 of 1 per cent., while the negro is 1.72 per cent. (and most of the mortality has been produced by *cholera*). In these last cases, both may be considered as picked lives, although all the insured are of those ages most liable to death here, viz., middle life. The one really takes care of himself, for himself and family, while the other is reckless and indifferent to influences which the first so carefully avoids. So powerful do I consider the influence of proper habits in correcting the influence of climate or condition, that I place personal, paramount to general, hygiène:— the one is for the individual, (and is controlled by his sense of interest) what the other is for the community, who are ignorant of its importance, and here extremely neglectful of it. A warm climate

and a filthy city deteriorates health where their opposites would not, and although much personal care will, in a great measure, remove most of their influences, yet the mass fall victims to them. This opinion is not given at random — I have the figures to sustain me; besides which, a professional acquaintance with the climate of thirty years, during all which time I have been collecting memoranda in relation to it, gives me full authority to speak boldly.

From the great difference, then, in the tables of general mortality and those of the special mortality, as furnished by the insurance companies, arise the profits of such companies. From this showing it is evident they must be greater here than in any part of the world! and I feel very sure that nowhere is there a greater difference in the prolonged enjoyments, as well as the hazards of life, between provident care and extreme recklessness.

E. H. BARTON.

MUTUAL BENEFIT LIFE AND FIRE INSURANCE COMPANY OF LOUISIANA.

A TABULAR VIEW of the Results of Life Insurance, as exemplified by the Experience of this Office, from its commencement to 1st April, 1851, a period of one year and nine months.

MEMORANDUM OF NUMBER INSURED, ETC.	PLACE OF BIRTH.	DISEASE.	AGE.	Whites.	Blacks.	TOTAL.
Of 716 Negroes insured in this Office, for a term of one year each, or less, 18 have died, making the proportion of deaths to the number insured, 2.513+ per cent. The ages of the insured ranging from 18@45 years.	Of the deceased, 1 was born in North Carolina;	Cholera	14@19	..	3	
	5 " Kentucky;	Do.	20@24	..	2	
	2 " Virginia;	Do.	25@29	..	1	
	1 " Tennessee;	Do.	30@34	..	1	
	1 " Alabama;	Do.	35@39	..	0	
	1 " Louisiana;	Do.	40@44	..	1	8
	1 " South Carolina;	Phthisis pulmonalis.	20	..	1	
	6 " Unknown.	Ditto .	30	..	1	2
	18	Drowned	17	..	1	
		Do.	36	..	1	2
		Typhoid fever	23	..	1	1
		Ulceration of throat .	24	..	1	1
		Diarrhœa	30	..	1	1
		Endo-Carditis	32	..	1	1
		Gastro-Enteritis	33	..	1	1
		Dropsy and paralysis,	45	..	1	1
		Deaths total of negroes				18
Of 266 Whites insured, 48 for 1 year term, 1 deceased. 68 for 7 " 1 " 150 for Life . . 0 " 266 2 Making the proportion of deaths to the number insured, 0.751+ per cent. Ages of insured from 18 to 45 years	New Orleans, La. -	Retrocedent Gout, convalescent of severe Cholera,	34	1		1
	Kentucky - - -	Cholera - -	33	1		1
	Deaths total					

MUTUAL BENEFIT LIFE INSURANCE COMPANY, NEWARK, NEW JERSEY.

A TABULAR VIEW of the Results of Life Insurance, as exemplified by the Experience of the Agency at New Orleans, from November, 1848, to June 1, 1851, a period of three years, under the supervision of

H. G. HEARTT, AGENT.

PLACE OF BIRTH.	NUMBER.	AGES WHEN INSURED.		REMARKS.
		YEARS.	NUMBER.	
New York - - -	11	29	1	Of thirty-seven white persons insured during the existence of this Agency, covering risks to the amount of $198,000, not one death has occurred. It will be recollected that cholera prevailed during December, 1848, and a portion of 1849.
Pensylvania - - -	4	24	2	
Connecticut - -	4	26	1	
Massachusetts - -	3	30	1	
Kentucky - - -	3	31	3	
New Jersey - - -	2	32	1	
Rhode Island - -	1	33	4	
Tennessee - - -	1	34	4	
Mississippi - - -	1	35	3	
Alabama - - -	1	36	1	
England - - - -	2	37	4	
Ireland - - - -	1	38	6	
Germany - - - -	1	40	3	
West Indies - -	1	41	1	
Unknown - - - -	1	45	1	
	.	47	1	
TOTAL - -	37	....	37	

TABLE OF THE RATE OF MORTALITY AT CARLISLE,

Commonly known as the Carlisle Tables.

Age.	Number alive in each year	Deaths in that year.	Age.	Number alive in each year.	Deaths in that year	Age.	Number alive in each year.	Deaths in that year.
0	10000	1539	35	5362	55	70	2401	124
1	8461	682	36	5307	56	71	2277	134
2	7779	505	37	5251	57	72	2143	146
3	7274	276	38	5194	58	73	1997	156
4	6998	201	39	5136	61	74	1841	166
5	6797	121	40	5075	66	75	1675	160
6	6676	82	41	5009	69	76	1515	156
7	6594	58	42	4940	71	77	1359	146
8	6536	43	43	4869	71	78	1213	132
9	6493	33	44	4798	71	79	1081	128
10	6460	29	45	4727	70	80	953	116
11	6431	31	46	4657	69	81	837	112
12	6400	32	47	4588	67	82	725	102
13	6368	33	48	4521	63	83	623	94
14	6335	35	49	4458	61	84	529	84
15	6300	39	50	4397	59	85	445	78
16	6261	42	51	4338	62	86	367	71
17	6219	43	52	4276	65	87	296	64
18	6176	43	53	4211	68	88	232	51
19	6133	43	54	4143	70	89	181	39
20	6090	43	55	4073	73	90	142	37
21	6047	42	56	4000	76	91	105	30
22	6005	42	57	3924	82	92	75	21
23	5963	42	58	3842	93	93	54	14
24	5921	42	59	3749	106	94	40	10
25	5879	43	60	3643	122	95	30	7
26	5836	43	61	3521	126	96	23	5
27	5793	45	62	3395	127	97	18	4
28	5748	50	63	3268	125	98	14	3
29	5698	56	64	3143	125	99	11	2
30	5642	57	65	3018	124	100	9	2
31	5585	57	66	2894	123	101	7	2
32	5528	56	67	2771	123	102	5	2
33	5472	55	68	2648	123	103	3	2
34	5417	55	69	2525	124	104	1	1

TABLE, showing the probabilities of the Duration of Human Life at all Ages from 10 to 97, deduced from the experience of the Equitable Insurance Company, of London.

AGES.	LIVING.	DECRE-MENTS	AGES.	LIVING.	DECRE-MENTS	AGES.	LIVING.	DECRE-MENTS
10	5000	36	40	3922	43	70	1800	115
11	4964	36	41	3879	44	71	1685	115
12	4928	36	42	3835	44	72	1570	115
13	4892	36	43	3791	44	73	1455	115
14	4856	36	44	3747	45	74	1340	115
15	4820	36	45	3702	47	75	1225	114
16	4784	36	46	3655	47	76	1111	109
17	4748	36	47	3608	48	77	1002	105
18	4712	36	48	3560	49	78	897	101
19	4676	35	49	3511	50	79	796	96
20	4641	34	50	3461	52	80	700	93
21	4607	33	51	3409	55	81	607	90
22	4574	33	52	3354	58	82	517	85
23	4541	33	53	3296	62	83	432	83
24	4508	33	54	3234	64	84	349	73
25	4475	34	55	3170	66	85	276	61
26	4441	34	56	3104	70	86	215	50
27	4407	34	57	3034	75	87	165	42
28	4373	34	58	2959	79	88	123	34
29	4339	34	59	2880	84	89	89	22
30	4305	35	60	2796	88	90	67	18
31	4270	35	61	2708	90	91	49	14
32	4235	36	62	2618	91	92	35	11
33	4199	37	63	2527	93	93	24	8
34	4162	38	64	2434	95	94	16	7
35	4124	38	65	2339	100	95	9	5
36	4086	39	66	2239	105	96	4	3
37	4047	40	67	2134	108	97	1	1
38	4007	42	68	2026	111			
39	3965	43	69	1915	115		244092	5000

TABLE OF THE NEW RATE OF MORTALITY IN ENGLAND:

Exhibiting the LAW OF MORTALITY AMONGST ASSURED LIVES, according to the combined Town and Country Experience of Life Offices, deduced from 62,537 Assurances under the superintendence of a Committee of eminent Actuaries in London.

Completed Age.	Number Surviving at each Age.	Deaths in each Year.	Logarithm of Number surviving at each Age.	Completed Age.	Number Surviving at each Age.	Deaths in each Year.	Logarithm of Number surviving at each Age.
10	100000	676	5 0000000	55	63469	1375	4.8025617
11	99324	674	4.9970542	56	62094	1436	4.7930496
12	98650	672	4.9940971	57	60658	1497	4.7828881
13	97978	671	4.9911286	58	59161	1561	4.7720355
14	97307	671	4.9881441	59	57600	1627	4.7604225
15	96636	671	4.9851389	60	55973	1698	4.7479786
16	95965	672	4.9821129	61	54275	1770	4.7345998
17	95293	673	4.9790610	62	52505	1844	4.7202007
18	94620	675	4.9759829	63	50661	1917	4.7046738
19	93945	677	4.9728737	64	48744	1990	4.6879212
20	93268	680	4.9697327	65	46754	2061	4.6698188
21	92588	683	4.9665547	66	44693	2128	4 6502395
22	91905	686	4.9633391	67	42565	2191	4.6290526
23	91219	690	4.9600853	68	40374	2246	4.6061018
24	90529	694	4.9567877	69	38128	2291	4.5812440
25	89835	698	4.9534456	70	35837	2327	4.5543316
26	89137	703	4.9500580	71	33510	2351	4.5251744
27	88434	708	4.9466193	72	31159	2362	4.4935835
28	87726	714	4.9431283	73	28797	2358	4.4593472
29	87012	720	4.9395792	74	26439	2339	4.4222450
30	86292	727	4.9359705	75	24100	2303	4.3820170
31	85565	734	4.9322962	76	21797	2249	4.3383967
32	84831	742	4.9285546	77	19548	2179	4.2911023
33	84089	750	4.9247392	78	17369	2092	4.2397748
34	83339	758	4.9208483	79	15277	1987	4.1840311
35	82581	767	4.9168801	80	13290	1866	4.1235250
36	81814	776	4.9128276	81	11424	1730	4.0578182
37	81038	785	4.9086887	82	9694	1582	3.9865030
38	80253	795	4.9044613	83	8112	1427	3.9091279
39	79458	805	4.9001376	84	6685	1268	3.8251014
40	78653	815	4.8957153	85	5417	1111	3.7337588
41	77838	826	4.8911917	86	4306	958	3.6340740
42	77012	839	4.8865584	87	3348	811	3.5247854
43	76173	857	4.8818011	88	2537	673	3.4043205
44	75316	881	4.8768872	89	1864	545	3.2404459
45	74435	909	4.8717772	90	1319	427	3.1202448
46	73526	944	4.8664409	91	892	322	2.9503649
47	72582	981	4.8608289	92	570	231	2.7558749
48	71601	1021	4.8549191	93	339	155	2 5301997
49	70580	1063	4.8486817	94	184	95	2.2648178
50	69517	1108	4.8420910	95	89	52	1.9493900
51	68409	1156	4.8351132	96	37	24	1.5682017
52	67253	1207	4.8277117	97	13	9	1.1139434
53	66046	1261	4.8198465	98	4	3	0.6020600
54	64785	1316	4.8114745	99	1	1	0.0000000

TABLE, showing the DISORDERS (as certified to the Court of Directors) of which persons assured by the Equitable Society have died during thirty-two years, from the 1st of January, 1801, to the 31st December, 1832.

DISEASES.	10 TO 20	20 TO 30	30 TO 40	40 TO 50	50 TO 60	60 TO 70	70 TO 80	80 ETC	Total.
Accidents	..	7	..	11	9	4	5	4	40
Angina pectoris	..	..	8	16	45	47	26	3	145
Aneurism	..	..	1	2	..	..	1	..	4
Apoplexy	1	4	25	56	129	169	86	16	486
Asthma	..	..	..	2	20	26	22	4	74
Atrophy	..	..	4	7	11	15	6	..	43
Cancer	..	..	2	5	14	15	4	3	43
Child-birth	..	..	2	2	..	..	..	..	4
Cholera morbus	..	..	2	5	5	9	5	1	27
Consumption	4	23	63	83	81	66	18	1	339
Convulsion fits	..	..	..	4	1	3	..	..	8
Decay (natural, and old age)	..	..	..	..	10	128	241	187	566
Diabetes	..	..	..	3	2	1	1	1	8
Disorders not properly defined	..	..	9	11	20	27	12	..	79
Dropsy	1	..	10	39	67	83	50	7	257
Dropsy on the chest	..	1	3	23	52	59	42	3	183
Dysentery	..	..	1	3	5	11	11	3	34
Disease of the stomach and digestive organs	..	2	9	12	28	31	22	2	106
Diseased liver	..	2	8	37	54	49	23	2	175
Disease of the bladder and urinary passages	..	..	2	9	25	44	41	6	128
Epilepsy	..	1	2	8	2	2	4	..	19
Erysipelas	..	1	2	7	6	7	3	..	26
Fevers, general	..	5	30	55	61	70	34	7	262
" bilious	..	1	5	10	10	8	2	1	37
" nervous	..	3	3	13	9	9	5	..	42
" inflammatory	..	3	2	6	10	5	6	..	32
" putrid	..	2	7	4	7	7	1	..	28
Gout	..	..	2	6	8	14	7	1	38
Inflammation of the bowels	2	2	14	20	26	44	16	2	126
" of the lungs	..	2	12	12	41	56	45	17	185
" of the brain	1	4	15	16	13	12	2	1	64
Inflammation of the chest and peripneumony	1	1	1	8	11	21	12	4	59
Mortification	..	..	..	2	12	14	12	6	46
Murdered	..	..	..	1	1	..	1	..	3
Palsy	..	1	5	15	47	84	74	9	235
Pleurisy	..	..	..	1	1	2	..	..	4
Quincy	..	..	..	1	1	1	..	..	3
Rupture of a blood vessel	1	..	12	19	19	22	6	..	82
Slain in War	1	1	1	1	..	..	..	..	4
Small-pox	..	..	..	..	..	..	..	1	1
Stone	..	..	..	..	1	2	7	2	12
Suicide	..	1	2	6	15	5	..	..	29
Water on the brain	..	..	1	3	4	1	..	..	9
	12	67	266	544	883	1173	856	294	4095

TABLE OF COMPARATIVE EXPECTATIONS OF LIFE IN ENGLAND.

Showing the Expectation or Average duration of Life, deduced from Eight Original Tables prepared under the Superintendence of a committee of eminent Actuaries, and compared with the Carlisle, Equitable and Northampton Tables.

COMPLETED AGE.	MALE LIVES— Town, Country and Irish Experience.	FEMALE LIVES— Town, Country and Irish Experience.	Town Experience.	Country Experience	Irish Experience.	Combined Town Experience.	General Experience.	Adjusted Experience.	CARLISLE Experience.	EQUITABLE Experience.	NORTHAMPTON Experience.	COMPLETED AGE.
20	39.84	35.86	41.22	40.33	34.95	41.55	40.97	41.49	41.46	41.06	33 43	20
21	39.29	36.01	40.68	40.29	34.48	40·96	40.45	40.79	40.75	40.33	32.90	21
22	38.70	36.20	40.47	39.89	33.48	40.38	39 92	40.09	40.04	39 60	32.39	22
23	37.98	35.41	39.87	38.98	32.78	39.65	39.18	39.39	39.31	38.88	31.88	23
24	37.41	34.81	39.23	38.37	32.64	38.98	38.54	38.68	38.59	38.16	31.36	24
25	36.63	34.41	38.56	37.55	31.94	38.26	37.84	37.98	37.86	37.44	30.85	25
26	35.88	33.79	37.82	36.88	31.05	37.54	37.13	37.27	37.14	36.73	30.33	26
27	35.23	33.14	37.10	36.12	30.99	36.81	36.42	36.56	36.41	36.02	29.82	27
28	34.63	33.07	36.45	35.54	30.76	36.12	35.76	35.86	35.69	35.33	29.30	28
29	33.96	32.61	35.67	34.91	30.56	35.38	35.06	35.15	35.00	34.65	28.79	29
30	33.17	31.73	34.84	34.20	29.71	34.54	34.25	34.43	34.34	33.38	28.27	30
31	32.44	31.04	34.07	33.51	29.08	33.78	33·50	33.72	33.68	33.40	27.76	31
32	31.73	30.51	33 34	32.86	28.36	33.01	32.75	33.01	33.03	32.64	27.24	32
33	30·92	29.86	32.53	32.05	27.63	32.22	31.98	32.30	32.36	31.98	26.72	33
34	30.21	29.60	31.87	31.41	26.85	31.51	31.27	31.58	31.68	31.32	26.20	34
35	29.52	29.07	31.12	30.78	26.30	30.77	30.55	30.87	31.00	30.66	25.68	35
36	28.87	28.88	30.44	30.20	25.77	30.08	29.90	30.15	30.32	30.01	25.16	36
37	28.15	28.30	29.69	29.45	25.26	29.37	29.20	29.44	29.64	29.35	24.64	37
38	27.49	27.62	29.00	28.81	24.61	28.65	28.51	28.72	28.96	28.70	24.12	38
39	26.81	27.00	28.34	28.16	23.93	27.92	27.79	28.00	28.28	28.05	23.60	39
40	26.06	26.36	27.53	27.38	23.36	27.20	27.07	27.28	27.61	27.40	23.08	40
41	25.42	25.84	26.85	26.73	22.86	26.51	26.41	26.56	26.97	26.74	22.56	41
42	24.70	25.34	26.19	26.01	22.14	25.79	25.68	25.84	26.34	26.07	22.04	42
43	24.00	24.57	25.47	25.22	21.56	25.07	24.98	25.12	25.71	25.40	21.54	43
44	23.34	23.94	24.77	24.59	21.00	24.32	24.26	24.40	25.09	24·75	21.03	44
45	22.63	23.21	24.08	23.83	20.30	23·61	23.55	23.69	24.46	24.10	20.52	45
46	21.98	22.60	23.42	23.13	19.76	22.90	22.85	22.97	23.82	23.44	20.02	46
47	21.24	21.97	22.70	22.34	19.12	22.15	22.12	22.27	23.17	22.78	19.51	47
48	20.62	21.16	22.01	21.67	18.59	21.44	21.41	21.56	22.50	22.12	19.00	48
49	20.08	20.69	21.34	21.13	18.27	20.77	20.79	20.87	21.81	21.47	18.49	49

TABLE OF COMPARATIVE EXPECTATIONS OF LIFE IN ENGLAND — (Continued.)

COMPLETED AGE.	MALE LIVES— Town, Country and Irish Experience.	FEMALE LIVES— Town, Country and Irish Experience.	Town Experience.	CountryExperience	Irish Experience.	Combined Town Experience.	General Experience.	Adjusted Experience.	CARLISLE Experience.	EQUITABLE Experience.	NORTHAMPTON Experience.	COMPLETED AGE.
50	19.41	20.05	20.58	20.48	17.76	20.07	20.11	20.18	21.11	20.83	17.99	50
51	18.73	19.46	19.89	19.73	17.20	19.41	19.46	19.50	20.39	20.20	17.50	51
52	18.05	18.80	19.17	19.03	16.62	18.75	18.79	18.82	19.68	19.59	17.02	52
53	17.40	18.31	18.52	18.30	16.11	18.11	18.16	18.16	18.97	19.00	16.54	53
54	16.77	17.58	17.95	17.55	15.51	17.46	17.50	17.50	18.28	18.43	16.06	54
55	16.21	16.78	17.25	16.96	15.04	16.76	16.83	16.86	17.58	17.85	15.58	55
56	15.66	16.07	16.74	16.40	14.41	16.17	16.23	16.22	16.89	17.28	15.10	56
57	15.09	15.39	16.08	15.87	13.85	15.56	15.62	15.59	16.21	16.71	14.63	57
58	14.45	14.79	15.35	15.24	13.34	14.90	14 98	14.97	15.55	16.15	14 15	58
59	13.99	14.28	14.86	14.60	13.04	14.25	14.38	14.47	14 92	15.60	13.68	59
60	13.47	13.78	14.23	14.03	12.67	13.68	13.81	13.77	14.34	15.06	13.21	60
61	12.99	13.10	13.58	13.50	12.29	13.08	13 24	13.18	13.82	14.51	12.75	61
62	12.46	12.41	13.01	12.87	11.81	12.52	12 68	12.61	13.31	13.96	12.28	62
63	11.90	11.87	12.26	12.26	11.45	11.91	12.09	12.05	12.81	13.42	11.81	63
64	11.27	11.09	11.62	11.75	10.67	11.32	11.50	11.51	12.30	12.88	11.35	64
65	10.87	10.60	11.18	11.44	10.19	10.86	11.03	10.97	11.79	12.35	10.88	65
66	10.38	10.00	10.69	10.82	9.74	10.37	10.51	10.46	11.27	11.83	10.42	66
67	9.93	9.56	10.11	10.26	9.44	9.87	10.03	9.96	10.75	11.32	9.96	67
68	9.33	8.85	9.57	9.72	8.73	9.31	9.46	9.47	10.23	10.82	9.50	68
69	8.81	8.38	9.29	8.94	8.27	8.88	8.99	9.00	9.70	10.32	9.05	69
70	8.34	7.93	8.61	8.48	7.92	8.44	8.50	8.54	9.18	9.84	8.60	70
71	7.88	7.31	8.33	7.92	7.37	8.10	8.13	8.10	8.65	9.36	8.17	71
72	7.43	6.63	7.65	7.37	6.98	7.69	7.72	7.67	8.16	8.88	7.74	72
73	6.97	6.19	7.08	6.76	6.70	7.22	7.26	7.25	7.72	8.42	7.33	73
74	6.57	5.72	6.53	6.31	6.37	6.79	6.84	6.86	7.33	7.97	6.92	74
75	6.03	5.37	6.29	5.55	5.97	6.45	6.46	6.48	7.01	7.52	6.54	75
76	5.63	5.45	6.34	5.45	5.34	6.10	6.08	6.11	6.69	7.08	6.18	76
77	5.48	4.78	5.52	4.90	5.59	5.74	5.77	5.76	6.40	6.64	5.83	77
78	5.16	4.56	5.19	4.69	5.23	5.32	5.37	5.42	6.12	6.20	5.48	78
79	4.99	4.80	5.32	4.91	4.80	5.05	5.07	5.09	5.80	5.78	5.11	79
80	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.78	5.51	5.38	4.75	80

SEVENTH CENSUS.

POPULATION OF THE UNITED STATES—APPORTIONMENT OF REPRESENTATIVES.

STATES.	WHITE POPULATION.	FREE COLORED POPULATION.	TOTAL FREE.	SLAVES.	FEDERAL REPRESENTATIVE POPULATION.	NUMBER OF REP'S.	FRACTIONS.
Alabama	426,515	2,250	428,765	342,894	634,501	6	*72,289
Arkansas	126,071	587	162,658	46,983	190,848	2	3,444
California	200,000	—	200,000	—	200,000	2	12,596
Connecticut	363,189	7,415	370,604	—	370,604	3	*89,498
Delaware	71,282	17,957	89,239	2,289	906,612	—	*90,612
Florida	47,120	926	48,046	39,311	71,650	—	*71,650
Georgia	513,083	2,586	515,669	362,966	733,448	7	*77,534
Indiana	983,634	5,100	988,734	—	988,734	10	*51,714
Illinois	853,059	5,239	858,298	—	858,298	9	20,980
Iowa	191,830	292	192,122	—	192,122	2	4,718
Kentucky	770,061	9,667	779,728	221,768	912,788	9	*75,470
Louisiana	254,271	15,685	269,955	230,807	408,440	4	33,632
Maine	581,920	1,312	583,232	—	583,232	6	21,020
Massachusetts	985,198	8,773	994,271	—	984,271	10	*57,251
Maryland	418,763	73,943	492,706	89,800	546,586	5	*78,076
Mississippi	291,536	898	292,434	300,119	472,685	4	4,175
Michigan	393,156	2,547	395,703	—	395,703	5	20,895
Missouri	592,176	2,667	594,843	89,289	618,416	6	*86,204
New Hampshire	317,354	477	317,831	—	317,831	3	36,725
New York	3,042,574	47,448	3,090,022	—	2,090,022	32	*91,558
New Jersey	466,283	22,269	488,552	119	488,623	5	20,113
North Carolina	552,477	27,271	† 580,458	288,412	735,505	8	3,889
Ohio	1,951,101	25,930	1,977,031	—	1,977,031	21	9,289
Pennsylvania	2,258,480	53,201	2,311,681	—	2,311,681	24	*62,533
Rhode Island	144,012	3,543	147,555	—	147,555	1	*53,853
South Carolina	274,775	8,769	283,544	384,925	514,499	5	45,989
Tennessee	767,319	6,280	773,599	249,519	923,310	9	*89,992
Texas	133,131	926	134,057	53,346	166,064	1	*72,362
Vermont	312,756	710	313,466	—	313,466	3	32,360
Virginia	894,149	53,906	948,055	473,026	1,231,870	13	13,744
Wisconsin	303,600	626	304,226	—	304,226	3	23,120
	19,517,885	409,200	19,927,085	2,173,902			
Dist. of Columbia	38,027	9,973	48,000	3,687			
TERRITORIES.							
Minnesota	6,192	—	6,192				
New Mexico	61,632	—	61,632				
Oregon	20,000	—	20,000				
Utah	25,000	—	25,000				
	19,668,736	419,173	20,087,909	3,175,589	21,832,621	218	
Representatives allowed for fractional numbers, as marked						15	
Whole number of representatives under the next apportionment						233	

* These States have a representative added to the number of apportionment.
† Including 710 civilized Indians.

RECAPITULATION.

	TOTAL FREE POPULATION.	SLAVES.	REPRESENTATIVE POPULATION
Free States	13,533,326	119	13,533,399
Slave States	6,393,757	3,175,783	8,299,226
Districts and Territories	160,824	3,687	
	20,087,909	3,179,589	21,832,625
Total free population			20,087,909
Slaves			3,179,589
			23,267,498
Ratio of representation			93,702

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